

## Supported Files

Extension	Codec category	Code type	Profile/Level Support
.asf .wmv	Video codec	VC-1 Advanced Profile	Advanced Profile @ Level 3 (e.g. 720p60, 1080i60, 1080p30) Only files compliant with SMPTE 421M VC-1 standard can be streamed.
		VC-1 Simple and Main Profiles	Simple Profile @ Medium Level (e.g. CIF, QVGA) Main Profile @ High Level (e.g. 1080p30) Only files compliant with SMPTE 421M VC-1 standard can be streamed.
	Audio Codec	WMA Standard	
		WMA 9 Professional	
.divx .avi	Video codec	Divx3.11	
		Divx4 Divx5 Divx6	Advanced Simple Profile (720p/1080i)
		XViD	Advanced Simple Profile (720p/1080i)
	Audio Codec	MPEG-1 Layer I, II	
		MPEG-1 Layer III (MP3)	
		Dolby Digital	
		WMA Standard	
		WMA 9 Professional	
DTS	Korea only		
.mp4 .m4v	Video codec	H.264 /AVC	Main Profile @Level 4.1 High Profile@ Level 4.1 (e.g. 720p60, 1080i60, 1080p30)
		MPEG-4 Part 2	Advanced Simple Profile (720p/1080i)
	Audio Codec	HE-AAC	HE-AAC-LC and HE-AAC
.mkv	Video codec	H.264 /AVC	Main Profile @Level 4.1 High Profile@ Level 4.1 (e.g. 720p60, 1080i60, 1080p30)
	Audio Codec	HE-AAC	HE-AAC-LC and HE-AAC
		Dolby Digital	
		DTS	Korea only
.ts .trp .tp	Video codec	H.264 /AVC	Main Profile @Level 4.1 High Profile@ Level 4.1 (e.g. 720p60, 1080i60, 1080p30)
		MPEG-2	Main Profile @High Level (e.g. 720p60, 1080i60)
	Audio Codec	MPEG-1 Layer I, II	
		MPEG-1 Layer III (MP3)	
		Dolby Digital	
HE-AAC	HE-AAC-LC and HE-AAC		
.vob	Video codec	MPEG-1	
		MPEG-2	Main Profile @High Level (e.g. 720p60, 1080i60)
	Audio Codec	Dolby Digital	
		LPCM	
		MPEG-1 Layer I, II	
.mpg .mpeg .mpe	Video codec	MPEG-1	
	Audio Codec	MPEG-1 Layer I, II	Only files configured properly for TS, PS or ES can be streamed.

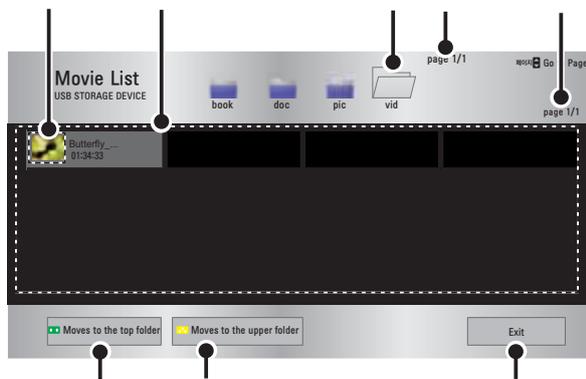
## Supported Audio Files

No	Audio Codec	Bit rate	Sampling rate	Remark
1	MP3	32 Kbps - 320 Kbps	32 kHz - 48 kHz	<b>The DTS Audio codec is available only in Korea.</b>
2	AC3	32 kbps - 640 kbps	32 kHz, 44.1 kHz, 48 kHz	
3	MPEG	32 kbps - 448 kbps	32 kHz - 48 kHz	
4	AAC,HEAAC	24 kbps - 3844 kbps	8 kHz - 96 kHz	
5	CDDA	1.44 kbps	44.1 kHz	
6	LPCM	1.41 Mbps - 9.6 Mbps	Multi-channel: 44.1 kHz, 88.2 kHz / 48 kHz, 96 kHz Stereo: 176.4 kHz, 192 kHz	

**Browsing Movie List**

Play a video file stored in the connected device.

- 1 Connect a USB storage device.
- 2 Press the **USB** button.
- 3 Use the **Left**, **Right**, or **Up** button to select **Movie List** and press the **OK** button.
- 4 Use the **Left**, **Right**, or **Up** button to select the file you want and press the **OK** button.



	Description
	Thumbnails
	Abnormal file 
	File not supported 
	File List
	Moves to the upper level folder.
	Current page/Total no. of folder pages
	Current page/Total no. of file pages
	Moves to the <b>top level folder</b> .
	Moves to the <b>upper level folder</b> .
	Exit Movie List.

- 5 Control playback by using the following buttons.



Item	Description
	Shows the current playing position. You can use the < or > button to move forward or backward.
■	Stops playing and returns to Movie List.
▶	Resumes normal playback.
⏸	Pauses the media player. If no button is pressed on the remote control for 10 minutes after pausing, playback is restarted.
⏪▶	Displays in slow motion.
⏮▶	Whenever this button is pressed, the playback speed is changed. : x2, x4, x8, x16, x32
⏻	You can use the Energy Saving mode.
<b>Op-tions</b>	A pop-up window will appear.
<b>Hide</b>	Hides the playback bar. Press the <b>OK</b> button to make the playback bar appear.
<b>Exit</b>	Returns to the <b>Movie List</b> screen.

Set options

- 1 Press the **Q.MENU** button.
- 2 Use the  or  button to move to a desired option and press the **OK** button.
- 3 Use , , or  button to set up each item.

Set Video Play

Item	Description
<b>Aspect Ratio</b>	Selects the aspect ratio of the image. <ul style="list-style-type: none"> <li>• <b>Full:</b> Files are played in full screen mode according to the aspect ratio of the video.</li> <li>• <b>Just Scan:</b> Displays the video in the original aspect ratio.</li> </ul>
<b>Audio Language</b>	Allows you to select the language you want for the file with multiple audio tracks. This option is not available if the file has only one audio track.
<b>Subtitle Language</b>	The subtitle can be turned on or off. <b>Language:</b> One of any of the available languages can be selected. <ul style="list-style-type: none"> <li>• <b>Code Page:</b> A character set used for a subtitle can be selected.</li> </ul> By default, the subtitle is displayed in a language configured in <b>OPTION</b> → <b>Menu Language</b> .

Item	Description
<b>Subtitle Language</b>	<ul style="list-style-type: none"> <li>• <b>Speed:</b> If a subtitle is not synchronized with its video, you can adjust its speed at 0.5 sec unit.</li> <li>• <b>Position:</b> Moves the location of a subtitle.</li> <li>• <b>Size:</b> Changes the subtitle font size.</li> </ul>
<b>Repeat</b>	Turns the repeat function on or off. When it is set to off, the next file can be played sequentially if the file name is similar.

- **Subtitle Language**

<b>Subtitle Language</b>	<b>Language</b>
<b>Latin1</b>	English, Spanish, Irish, Welsh, French, German, Italian, Dutch, Swedish, Finnish, Portuguese, Danish, Romanian, Norwegian, Albanian, Gaelic, Catalan, Valencian
<b>Latin2</b>	Bosnian, Polish, Croatian, Czech, Slovak, Slovene, Serbian, Hungarian
<b>Latin4</b>	Estonian, Latvian, Lithuanian
<b>Greek</b>	Greek
<b>Cyrillic</b>	Bulgarian, Russian, Ukrainian, Kazakh, Macedonian
<b>Hebrew</b>	Hebrew
<b>Chinese</b>	Chinese
<b>Korean</b>	Korean
<b>Arabic</b>	Arabic
<b>Turkish</b>	Turkish
<b>Thai</b>	Thai

### **Set Video**

You can change video settings. (Refer to "Set Video." on 43page.)

### **AUDIO Settings**

You can change audio settings. (Refer to "AUDIO Settings" on 47page.)

## Registering the DivX code

Please check your DivX code. For more information on the registration process, visit [www.divx.com/vod](http://www.divx.com/vod). After registration, you can enjoy VOD content protected by the DivX<sup>®</sup> DRM.

- 1 Move from the HOME menu to **OPTION** and press **DivX(R) VOD**.



- 2 Press the **OK** or **ENTER** button to move to Registration and press the **OK** button.



- 3 Check the DivX registration code.

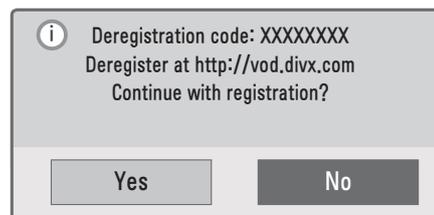
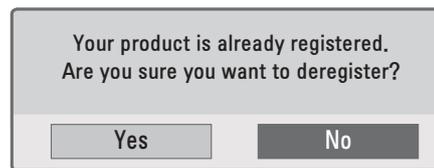
### ! NOTE

- You cannot use DivX registration codes assigned to other devices. Make sure to use the DivX registration code assigned to your device.
- The video or audio files that are not converted by the standard DivX codec may be corrupted or not be played.

## To deregister the DivX code

Use the DivX deregistration code to deactivate the DivX DRM function.

- 1 Move from the HOME menu to **OPTION** and press **DivX(R) VOD**.
- 2 Use the **OK** or **ENTER** button to go to **Deregistration** and press the **OK** button.
- 3 Select **Yes**.



### ! NOTE

- What is DRM [Digital Rights Management]? This is a technology and service that prevents the illegal use of digital contents to protect the benefits and rights of the copyright owner. Files can be played after the license is verified through an online method, etc.

## Viewing the Photos

You can view photos stored on a connected device.

### Photo File

PHOTO (\*.JPEG)

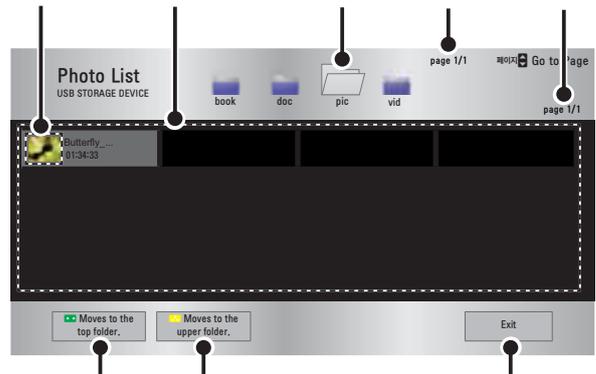
Baseline: 64-pixel (width) x 64-pixel (height) - 15360-pixel (width) x 8640-pixel (height)

Progressive: 64-pixel (width) x 64-pixel (height) - 1920-pixel (width) x 1440-pixel (height)

- Only JPEG files are supported.
- Non-supported files are displayed in the form of an icon.
- An error message is displayed for corrupted files or file formats that cannot be played.
- Corrupted files may not be displayed properly.
- It may take some time to view high-resolution images in full screen.

### Browsing Photo List

- 1 Connect a USB storage device.
- 2 Press the **USB** button.
- 3 Use the **Left**, **Right**, or **Up** button to select **Photo List** and press the **OK** button.
- 4 Use the **Left**, **Right**, or **Up** button to select the file you want and press the **OK** button.



Description	
Thumbnails	
Abnormal file	
File not supported	
File List	
Moves to the upper level folder.	
Current page/Total no. of folder pages	
Current page/Total no. of file pages	
Moves to the <b>top level folder</b> .	
Moves to the <b>upper level folder</b> .	
Shutdown	

**5** Control playback by using the following buttons.



Item	Description
	Selects the previous or next photo.
Slide show	Displays all photos in a slide show. Set <b>Slide Speed</b> in the <b>Option</b> → <b>Set Photo View</b> menu.
BGM	You can listen to music while viewing full-size photos. Set <b>BGM</b> in the <b>Option</b> → <b>Set Photo View</b> menu.
	Rotates photos. Rotates a photo 90°, 180°, 270°, 360° clockwise. Photos cannot be rotated if their width is greater than the height of the maximum supported resolution.
	Enlarges or reduces the photo. Press the <b>blue</b> button to enlarge the image.
	You can use the Energy Saving mode.
Options	A setting pop-up window will appear.
Hide	Hides the menu on the full size screen. To see the menu, press the <b>OK</b> button on the remote control.
Exit	Exit from full screen photo view.

**Set options**

- 1 Press the Q.MENU button.
- 2 Use the or button to move to a desired option and press the OK button.
- 3 Use , , or button to set up each item.

**Set Photo View**

Item	Description
<b>Slide speed</b>	Selects a slideshow speed.
<b>BGM</b>	Selects a music folder for the background music. <ul style="list-style-type: none"> <li>• You cannot change the music folder while the background music is playing.</li> <li>• For background music, only a folder from the same device can be selected.</li> </ul>
<b>Repeat</b>	Selects repeat.
<b>Random Play</b>	Selects random play.

**Set Video**

You can change video settings. (Refer to "Set Video." on 43page.)

**AUDIO Settings**

You can change audio settings. (Refer to "AUDIO Settings" on 47page.)

## Listening to Music

You can play audio files stored on the connected device.

### Audio File

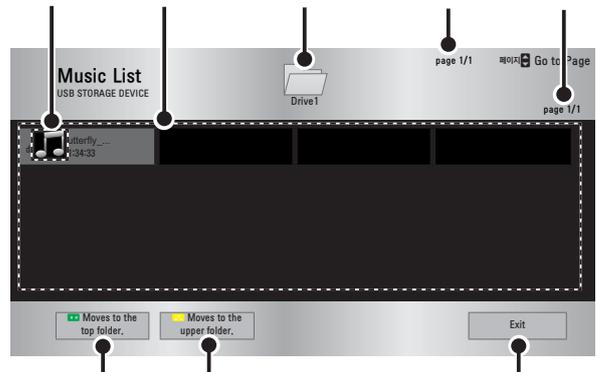
\*.MP3

Bit rate range 32 Kbps - 320 Kbps

- Sampling rate MPEG1 Layer3:  
32 kHz, 44.1 kHz, 48 kHz
- Sampling rate MPEG2 Layer3:  
16 kHz, 22.05 kHz, 24 kHz

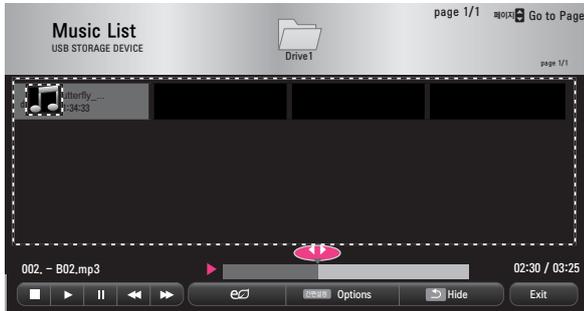
### Browsing Music List

- 1 Connect a USB storage device.
- 2 Press the **USB** button.
- 3 Use the **Left**, **Right**, or **Up** button to select Music List and press the OK button.
- 4 Use the **Left**, **Right**, or **Up** button to select the file you want and press the OK button.



	Description
	Thumbnails
	Abnormal file 
	File not supported 
	File List
	Moves to the upper level folder.
	Current page/Total no. of folder pages
	Current page/Total no. of file pages
	Moves to the top level folder.
	Moves to the upper level folder.
	Shutdown

**5** Control playback by using the following buttons.



Item	Description
	Changes the playing position.
	Stops playing.
	Resumes normal playback.
	Pauses the media player.
	Plays the previous/next file.
	You can use the Energy Saving mode .
Options	Sets <b>Option</b> for the music list.
Hide	Hides the playback bar. Press the <b>OK</b> button to make the playback bar appear.
Exit	Returns to the <b>Music List</b> screen.

**Set options**

- 1 Press the **Q.MENU** button.
- 2 Use the or button to move to a desired option and press the **OK** button.
- 3 Use , , or button to set up each item.

**Set Audio Play**

Item	Description
<b>Repeat</b>	Selects repeat.
<b>Random</b>	Selects random play.

**AUDIO Settings**

You can change audio settings. (Refer to "AUDIO Settings" on 47page.)

## Viewing the Files

You can see document files stored on a connected device.

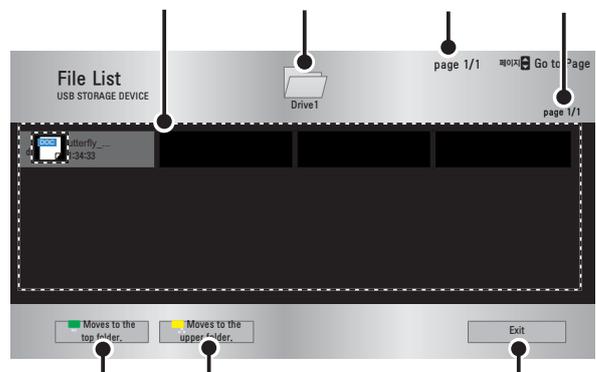
### Supported File Formats

XLS, DOC, PPT, TXT, XLSX, PPTX, DOCX, PDF, HWP  
 Microsoft Office 97/2000/2002/2003/2007  
 Adobe PDF 1.0/1.1/1.2/1.3/ 1.4  
 Hangul 97/2000/2002/2005/2007

- File Viewer realigns a document, so it may look different from what is displayed on a PC.
- For documents that include images, the resolution may look lower during the realigning process.
- If the document is large or has many pages, it may take longer to load the document.
- Unsupported fonts may be replaced by other fonts.

### File List Screen

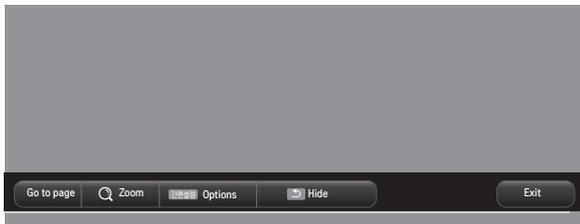
- 1 Connect a USB storage device.
- 2 Press the **USB** button.
- 3 Use the **←**, **→**, or **⏪** button to select **File List** and press the **OK** button.
- 4 Use the **←**, **→**, or **⏪** button to select the file you want and press the **OK** button.



	Description
	File List
	Moves to the upper level folder.
	Current page/Total no. of folder pages
	Current page/Total no. of file pages
	Moves to the top level folder.
	Moves to the upper level folder.
	Shutdown

**5** Control playback by using the following buttons.

- **When you press the Go to Page** button, a window where you can enter a page number appears. When you enter a page to go, you can move to the page.
- Press the volume button to **zoom in** or **zoom out**.
  1. Press the **OK** button.
  2. Press the **Up/Down/Left/Right** buttons to move to Go Page or Zoom.



Item	Description
Go to page	Moves to the page you want. Use the <b>Up/Down/Left/Right</b> buttons to select a page and press the <b>OK</b> button.
Zoom	Enlarges or reduces the photo.
Options	Sets <b>Option</b> for File Viewer.
Hide	Hides the menu. Press the <b>SETTINGS</b> button to make it appear.
Exit	Returns to the <b>File Viewer</b> screen.

### File Viewer Option Setting

Item	Description	
Loading Page One by One	<b>On</b>	Loads and displays pages one by one. The initial loading time is short but a content-heavy page may be displayed slowly.
	<b>Off</b>	Loads all pages of a file to memory before it starts to display them. The initial loading time is long but you can navigate pages quickly after loading is complete. If a file is too large, it may fail to load all the pages.
Image Quality	You can set the quality of the image included in the document. 3 steps, i.e. low/medium/high. A higher image quality may be displayed in a low speed on a screen.	
Initial Document Arrangement	Selects the initial document arrangement method.	

The File Viewer Option settings are default, so close the currently opened document to apply changes to the new document

# CUSTOMIZING SETTINGS

## Settings

- 1** Press the **SETTINGS** button.
- 2** Use the **←**, **→**, or **OK** button to select a desired item and press the **OK** button.
- 3** Use the **←**, **→**, or **OK** button to set up a desired item and press the **OK** button.
- 4** Press the **EXIT** button when completed.

Menu		Description
	PICTURE	Adjusts the image quality for optimal viewing.
	AUDIO	Adjusts the sound quality and volume level.
	TIME	Sets time-related settings.
	OPTION	Customizes the general settings.
	INPUT	Lets you select the desired input.
	MY MEDIA	Accesses photo, music, movie, and document files.

## Set Video.

- 1 Press the **SETTINGS** button.
- 2 Use the **←**, **→**, or **⏪** button to select **PICTURE** and press the **OK** button.
- 3 Use the **←**, **→**, or **⏪** button to set up a desired item and press the **OK** button.
  - To return to the previous menu, press the **↶** button.
- 4 Press the **EXIT** button when completed.



The available picture settings are described as follows.

Item	Description	
<b>Energy Saving</b>	Saves power consumption by adjusting screen brightness.	
<b>Picture Mode</b>	Selects one of the preset images or customizes options in each mode for the best screen performance. You can also customize advanced options for each mode.	
	<b>Mode</b>	
	<b>Vivid</b>	Maximizes the visual effect of video. Displays a crystal clear picture by enhancing contrast, brightness, and sharpness.
	<b>Standard</b>	Displays the picture with normal contrast, brightness and sharpness.
	<b>Eco</b>	The Energy Saver feature changes settings on the Projector to reduce power consumption.
	<b>Cinema</b>	Optimizes the image for a movie.
	<b>Game</b>	Optimizes the image for playing games on fast-moving screens.
	<b>Expert 1/2</b>	Adjusts the detailed image settings.
<b>Contrast</b>	Increases or decreases the gradient of the video signal.	
<b>Brightness</b>	Adjusts the base level of the video signal to make the image brighter or darker.	
<b>Sharpness</b>	Adjusts the level of edge sharpness between the light and dark areas of the picture. The lower the level is, the softer the image looks.	
<b>Color</b>	Adjusts the intensity of all colors.	
<b>Tint</b>	Adjusts the balance between red and green levels.	

Item	Description
<b>Advanced Control</b>	Customizes the advanced settings.
<b>Picture Option</b>	Sets optional settings.
<b>Reset</b>	Restores each mode's options to the factory default.
<b>Aspect Ratio</b>	Changes the aspect ratio.
<b>Screen (RGB-PC)</b>	Adjusts the picture quality in RGB-PC input.
	<b>Item</b>
<b>Resolution</b>	Available resolutions are 768 resolution (1024 x 768/1280x768/60Hz) and 1050 resolution (1400x1050/1680x1050, 60Hz).
<b>Auto Config.</b>	Provides optimized picture quality by automatically calibrating mismatched horizontal width and a shaky picture caused by conflicts between the internal settings of the projector and various PC graphic signals. <ul style="list-style-type: none"> <li>You can also use the <b>AUTO</b> button on the remote control.</li> </ul>
<b>Position</b>	Moves the image up/down/left/right.
<b>Ratio</b>	Changes the aspect ratio.
<b>Phase</b>	Makes the picture look clear by removing horizontal noise.
<b>Initial Setting</b>	Restores all the settings to the factory default.

## Advanced Control

Item	Description
<b>Dynamic Contrast</b>	Adjusts the contrast to keep it at the best level for the brightness of the screen.
<b>Dynamic Color</b>	Adjusts screen colors so that they look natural.
<b>Skin Color</b>	Detects the skin area of image and adjusts it to render a natural skin color.
<b>Grass Color</b>	Adjusts only the natural color area of e.g., field and mountain.
<b>Sky Color</b>	Adjusts only the color of the sky.
<b>Gamma</b>	Sets a gradation curve between video input and output signal. In Expert mode, you can customize the options of each mode.
	Gamma: Select 1.9, 2.2, or 2.4. a. Method: 2 points - Pattern: Inner, Outer - Contrast Red/Green/Blue, Brightness Red/Green/Blue: Adjustable range -50 - +50. b. Method: 10 points IRE - Pattern: Inner, Outer - IRE (Institute of Radio Engineers) is the unit that indicates the size of the video signal and can be set as either 10, 20, 30 - 90, or 100. You can fine-tune for each setting as shown below. - Luminance: If you set up luminance for 100 IRE, a luminance value satisfying each gamma is automatically calculated for each step from 10 IRE to 90 IRE. - Red/Green/Blue: The adjustment range is -50 - +50.

Available options may differ depending on the input signal or video mode, etc.

**Picture Option**

Item	Description
<b>Noise Reduction</b>	Removes noises in the picture.
<b>MPEG Noise Reduction</b>	Reduces the noise produced while creating digital video signals.
<b>Black Level</b>	Compensates the brightness and contrast of a screen to balance with the black level of the video input.
<b>Real Cinema</b>	Provides optimal picture quality for watching a movie.
<b>Color Temp</b>	Adjusts the overall color of the screen to suit your preference. Select Warm, Cool or Medium.

# AUDIO Settings

- 1 Press the **SETTINGS** button.
- 2 Use the **←**, **→**, or **↑** buttons to select **AUDIO** and press the **OK** button.
- 3 Use the **←**, **→**, or **↑** button to set up a desired item and press the **OK** button.
  - To return to the previous menu, press the **↶** button.
- 4 Press the **EXIT** button when completed.

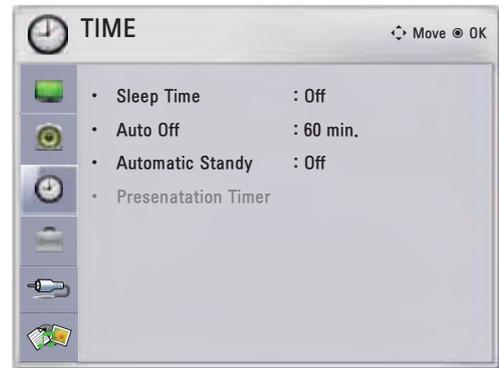


The available sound settings are described as follows.

Item	Description
<b>Sound Mode</b>	Adjusts sound.
	<b>Mode</b>
	<b>Standard</b> Selects a standard sound.
	<b>Music</b> Selects when listening to music.
	<b>Cinema</b> Selects when watching a movie.
	<b>Sports</b> Selects when watching sports events.
	<b>Game</b> Selects when playing a game.
	<b>User Setting</b> Adjusts sound of your choice.
<b>Clear Voice II</b>	Makes the voice from the projector crisp and clear.
<b>Auto Volume</b>	Automatically adjusts the volume level.

## TIME Settings

- 1 Press the **SETTINGS** button.
- 2 Use the **←**, **→**, or **OK** button to select **TIME** and press the **OK** button.
- 3 Use the **←**, **→**, or **OK** button to set up a desired item and press the **OK** button.
  - To return to the previous menu, press the **↶** button.
- 4 Press the **EXIT** button when completed.



The available time settings are described as follows.

Item	Description	
<b>Sleep Time</b>	Sets the projector to be turned off at the specified time.	
<b>Auto Off</b>	If there is no signal, the projector automatically turns off after the preset time has elapsed.	
<b>Automatic Standby</b>	Turns off the projector automatically if there is no input for the given time.	
<b>Presentation Timer</b>	<b>Time Alarm</b>	<p>Displays an alarm at the specified time.</p> <p>* If you set the time to 5 minutes, the time is displayed on the screen at a 1 minute interval. If you set the time to 10 minutes or more, the time is displayed at a 5 minute interval. If the remaining time is less than 5 minutes, it is displayed at a 1 minute interval.</p> <p>* You can set the time to 5, 10, ..., 60 minutes in 5-minute increments.</p>
	<b>Time keeper</b>	<p>Displays the time remaining until the time specified on the screen.</p> <p>* For between 1 and 10 minutes, the time can be set in increments of 1 minute; and for between 10 and 60 minutes, in increments of 5 minutes.</p>

# OPTION Settings

- 1 Press the **SETTINGS** button.
- 2 Use the **←**, **→**, or **↑** button to select **OPTION** and press the **OK** button.
- 3 Use the **←**, **→**, or **↑** button to set up a desired item and press the **OK** button.
  - To return to the previous menu, press the **↶** button.
- 4 Press the **EXIT** button when completed.



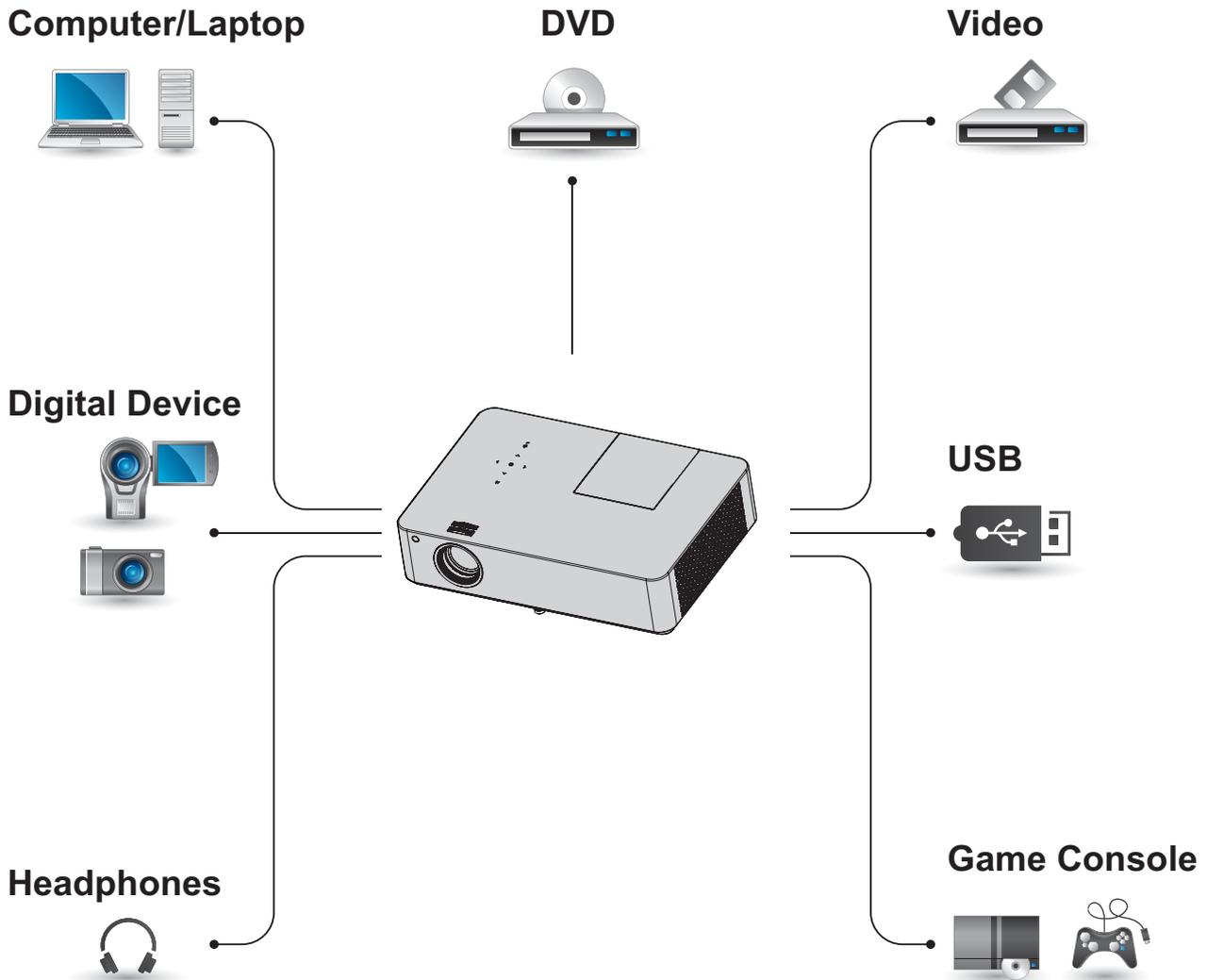
The available option settings are described below.

Item	Description
<b>Language</b>	Selects the desired language.
<b>Caption</b>	Turns On/Off the subtitle when the Korean is used for the AV input.
<b>PJT Mode</b>	Turns the projected image upside down or flips it horizontally. <ul style="list-style-type: none"> <li>• Select <b>Rear</b> to project an image onto the back of a transparent screen purchased separately.</li> <li>• Select <b>Front Ceiling</b> if you installed the projector on a ceiling.</li> <li>• When the projection mode is <b>Rear Ceiling</b>, the left and right speakers are switched.</li> </ul>
<b>Blank Image</b>	Selects the background for blank image. (see 25 page)
<b>Auto Power</b>	Makes the projector turn on automatically when the power cord is connected.
	<b>Item</b>
	<b>On</b> When the power cord is connected to the projector, it turns on automatically.
<b>Off</b> When the power cord is connected to the projector, it goes into standby mode.	
<b>Auto Input Search</b>	Turns off the projector automatically if there is no input for the given time.

Item	Description
<b>High Altitude</b>	If the projector is used at an altitude higher than 1200 meters, turn this option on. When High Altitude is not enabled, the projector may overheat or its protection function may be activated. If this happens, turn the projector off and then on again after waiting for several minutes.
<b>Monitor Out</b>	Selects one out of the two connected RGB input videos as monitor out.
<b>Key-stone</b>	Compensates for the trapezoidal image shape created when projecting an image from an angle not perpendicular to the screen.
<b>DivX(R) VOD</b>	sets DivX related settings.
<b>Initial Setting</b>	Resets all projector settings to the factory default.
<b>Set ID</b>	If the projector is connected to a PC through an RS-232C cable, you can use the PC to control functions of the projector such as power On/Off or input selection, etc.
<b>eZ-Net Manager</b>	Allows you to control one or more projectors in an easier way through a local area network.
<b>Lamp Use Time</b>	Checks lamp usage time.

# CONNECTING EXTERNAL DEVICES

You can connect various external devices to the projector.



HDMI - 52 Page

Component 1, Component 2 - 54 Page

Input (AV) - 54 Page

RGB1, RGB2 - 53 Page

Memory - 27 Page

Headphones - 55 Page

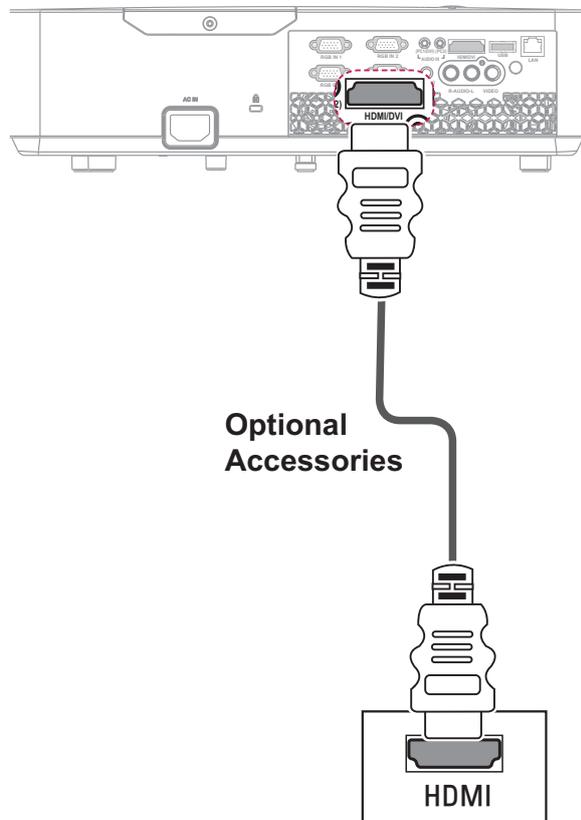
## Connecting HD Receiver, DVD, or VCR Player

Connect an HD receiver, DVD, or VCR player to projector and select an appropriate input mode.

### HDMI connection

With an HDMI cable, you can enjoy high quality picture and sound. Connect the 「HDMI/DVI」 connector of a projector to the HDMI output connector.

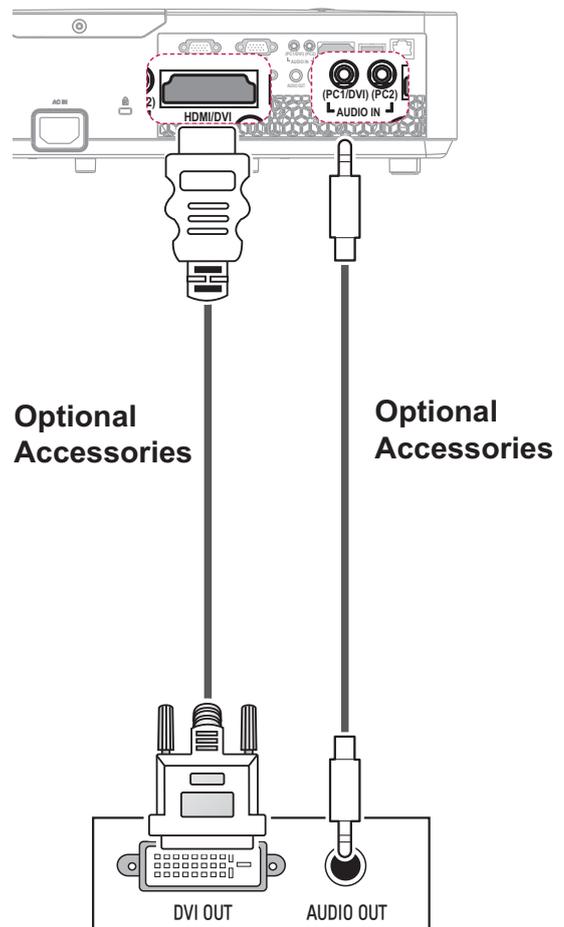
Press the INPUT button on the remote control to select HDMI.



### HDMI to DVI Connection

Connect the 「HDMI/DVI」 connector of a projector to the DVI output connector using a HDMI to DVI cable. For audio signal, connect using a voice cable.

Press the INPUT button on the remote control to select HDMI.



## Connecting PC

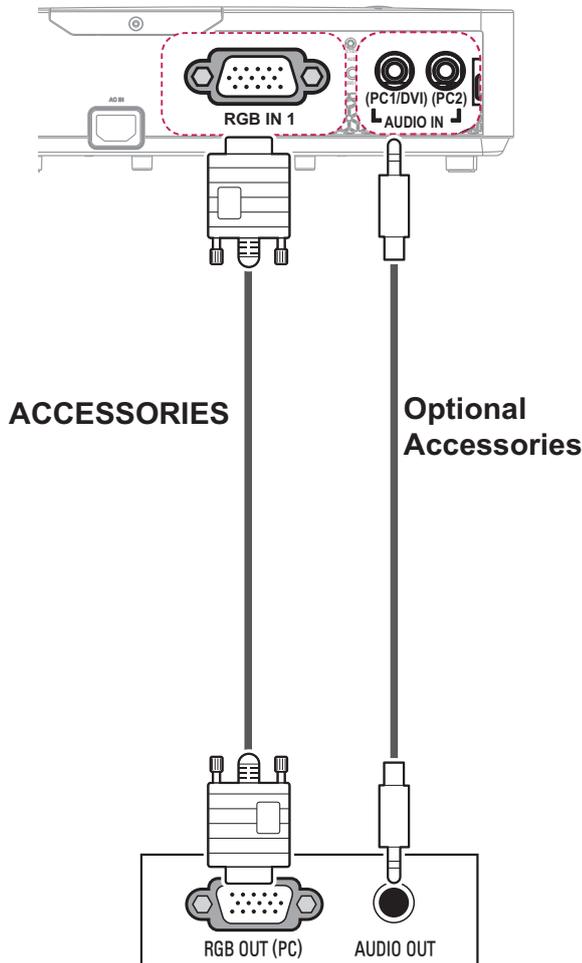
The projector supports Plug & Play. Your PC will automatically detect the projector and requires no driver installation.

### RGB Connection

Connect the PC output and the PC video input port of the projector with the RGB cable.

Connect the 「RGB IN 1」 connector or 「RGB IN 2」 connector of a projector to the RGB output connector.

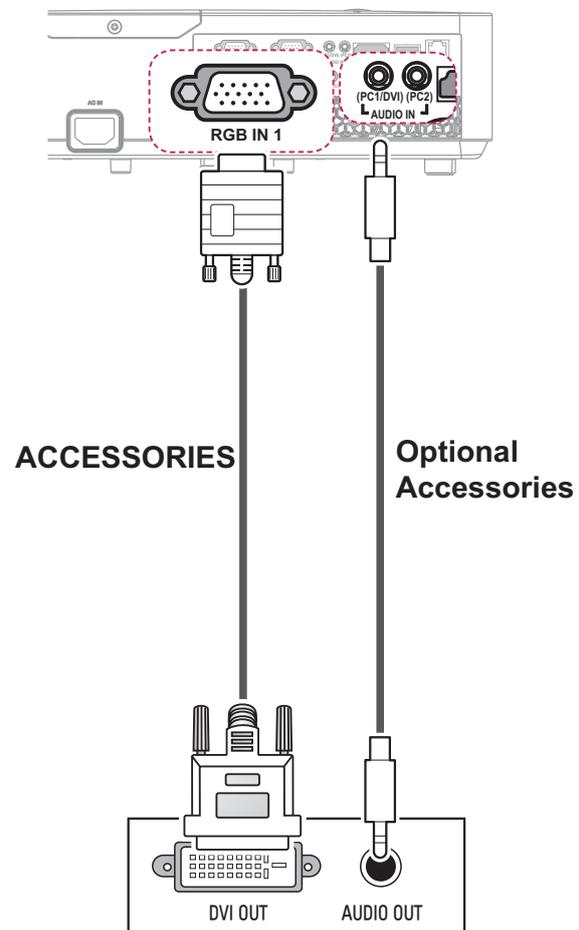
To output the audio, connect the PC to the projector using an optional audio cable.



### RGB to DVI Connection

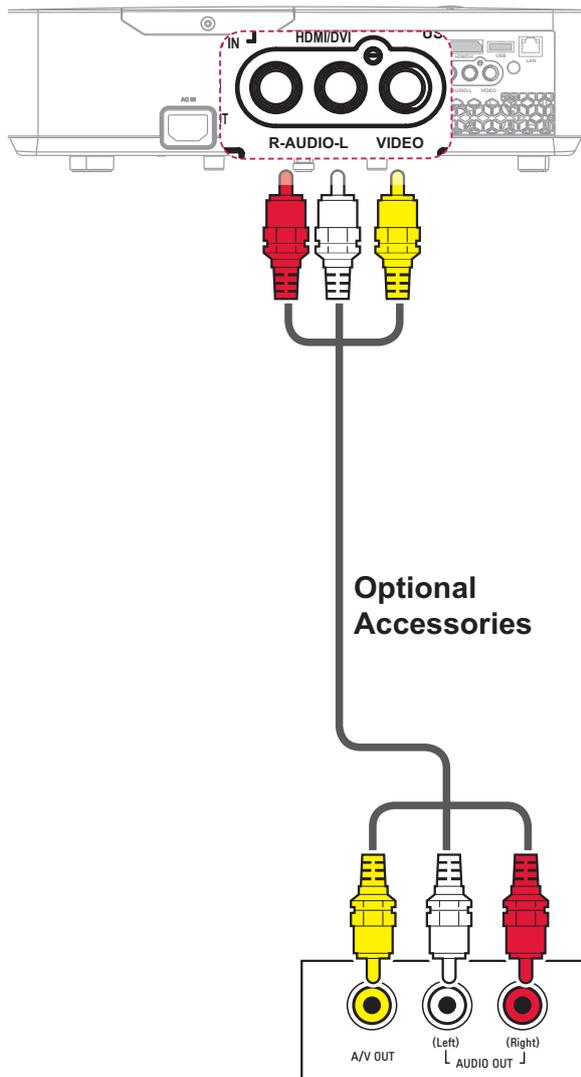
Connect the 「RGB IN 1」 connector or 「RGB IN 2」 connector of a projector to the DVI output connector.

To output the audio, connect the PC to the projector using an optional audio cable.



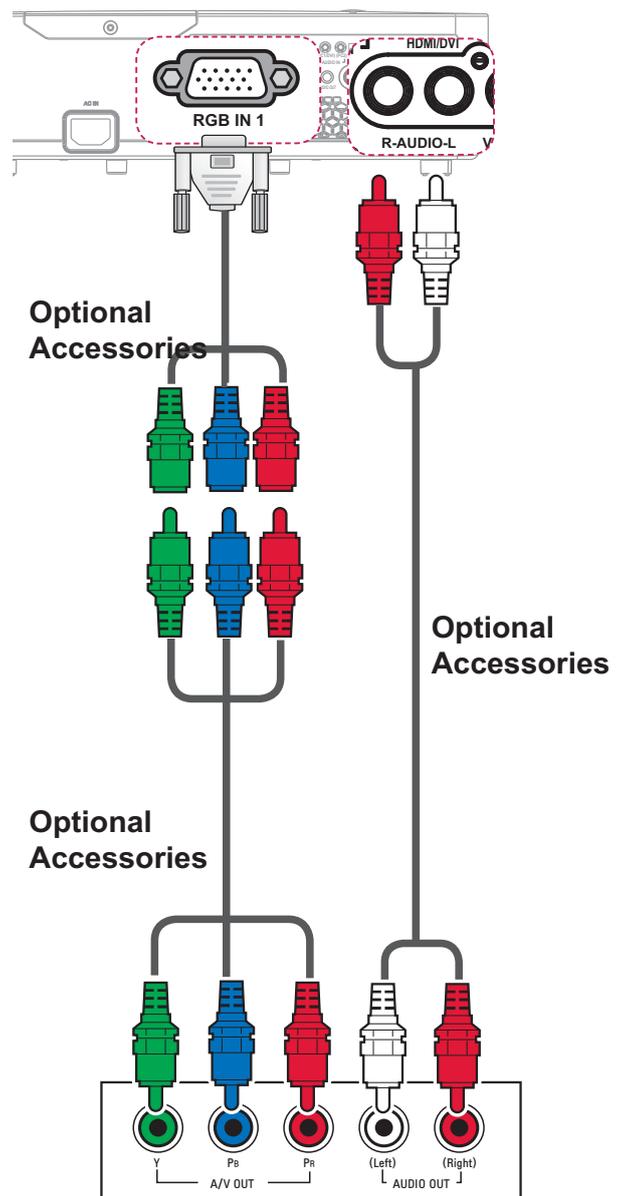
## AV Connection

Connect the output ports of an external device and the AV INPUT port of the projector. Press the **INPUT** button to select **AV**.



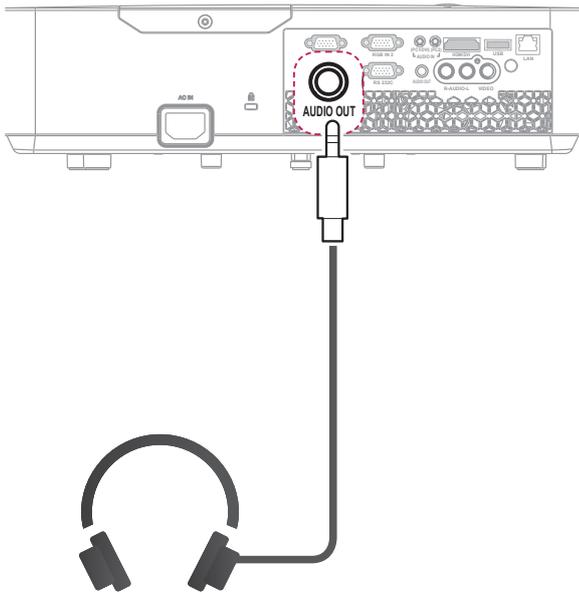
## Component Connection

You can enjoy vivid images when you connect an external device with a component port to the RGB IN port of the projector. Press the **INPUT** button on the remote control to select **Component**.



## Connecting Headphones

You can listen to the audio through headphones.



## MAINTENANCE

Clean your projector to keep it in optimal condition.

### Cleaning

#### Cleaning the Lens

If there is any dust or staining on the lens surface, you must clean the lens.

Use an air spray or a cleaning cloth to clean the lens.

To remove dust or stains, use an air spray or apply a small amount of cleaning agent onto a swab or soft cloth to lightly rub the lens. Please be aware that liquid may flow into the lens if the product is sprayed directly onto the lens.

#### Cleaning the Projector Case

To clean the projector case, first unplug the power cord.

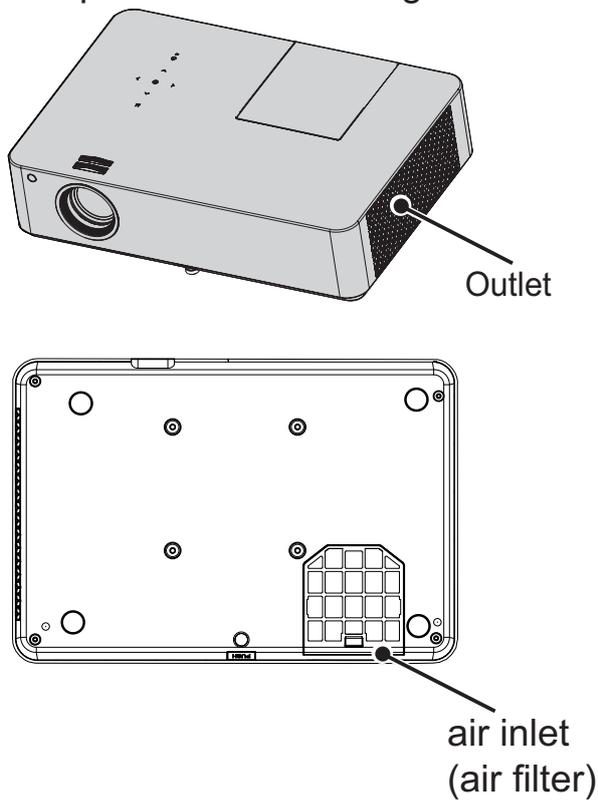
To remove dust or stains, use only a dry, lint-free, soft cloth to polish the lens.

Do not use alcohol, benzene, thinners or other chemicals, which may damage the case.

## Cleaning the Air Inlet and Outlet

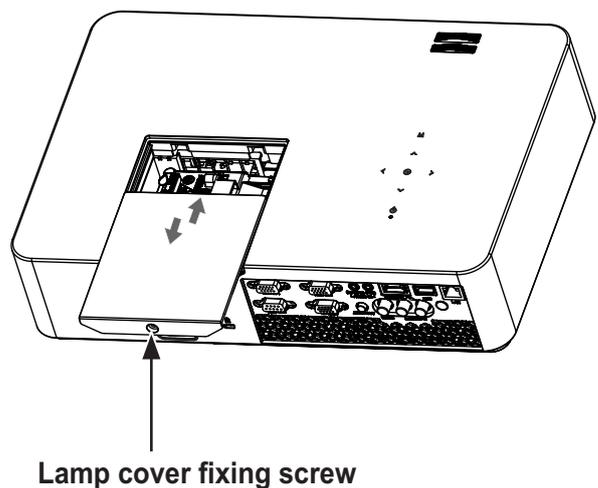
Dust or foreign objects can easily build up in the air inlet and outlet. Remove dust and foreign objects from the inlet and outlet regularly, clean the air inlet (air filter) regularly and replace it with a new one if the filter is damaged.

If you continue to use the projector with dust accumulations in the air inlet and outlet, the projector may malfunction due to its internal components overheating.

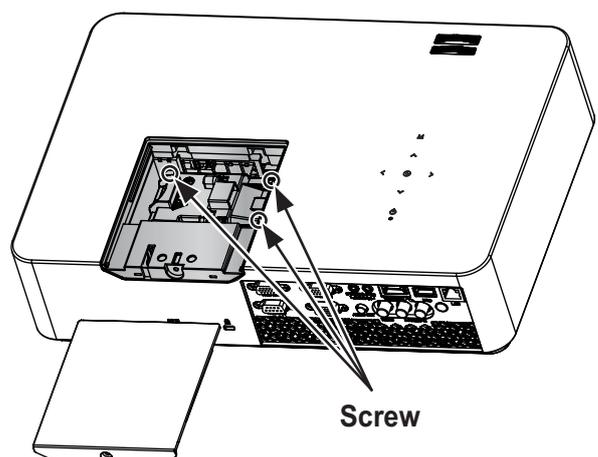


## Replacing the lamp

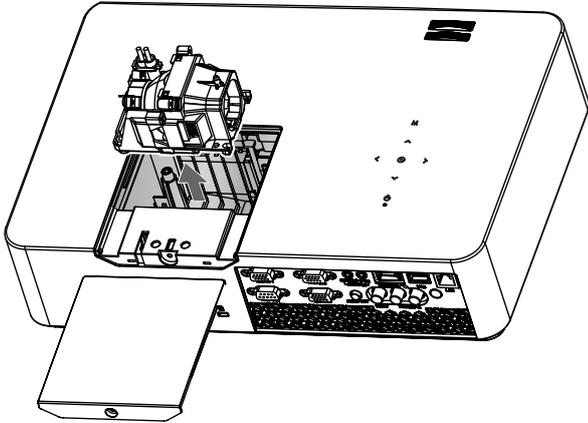
- 1** Turn off the projector and unplug the power cable from the outlet and place it on a table or a flat surface.
  - Allow the lamp to cool down for 1 hour before removing the used lamp from the projector because it is very hot.
- 2** Unscrew the screw fixing the lamp cover using a screw driver or its equivalent. After removing the screws, slide out the lamp cover.



- 3** After opening the lamp cover, unscrew the 3 screws that fix the lamp using a screw driver or its equivalent.



- 4 Slide out the fixed lamp from the hitch part.



- 5 Hold the lamp and pull it out slowly to remove the lamp case.
- 6 Insert the new lamp case gently into the correct position. (Check if it is correctly positioned.)
- 7 Tighten the screws you removed in step 3. (Check if the lamp is securely fixed.)
- 8 Close the lamp cover and tighten the screw loosened in step 2 to fix the cover.

- If you turn on the projector while the lamp cover is open, the lamp warning indicator will blink in green and the projector will not be turned on.

**!** **NOTE**

- Make sure to use the same type of lamp for replacement. If the lamp cover is not closed correctly, the projector will not be turned on. In this case, check if the lamp is correctly fixed and contact the LG Electronics Service Center.



### Communication Parameter Setup

- Baud Rate: 9600 bps (UART)
- Data Length: 8 bit
- Parity: none
- Stop bit: 1 bit
- Flow Control: none
- Communication code: ASCII code

## Communication Protocol

### 1. Transmission

[Command1] [Command2] [ ] [Set ID] [ ] [Data] [Cr]

- \* [Command1]: The first command to control the projector (k, j, x, ASCII code, 1 Character)
- \* [Command2]: The second command to control the projector (ASCII code, 1 character)
- \* [Set ID]: Used to select the set to control; ID can be granted for each set listed in the Special Menu, which can be selected from the range '1 - 99 (0 x 01 - 0 x 63)'. If Set ID is set to '00', you can control all the sets. In the command line, a hexadecimal value is used as a Set ID.
- \* [Data]: Used to send data needed for the commands mentioned above. If it is in ASCII code, 2 characters are sent.
- \* If the data is 'FF', it means data read mode.
- \* [Cr]: Carriage Return  
It corresponds to ASCII code '0x0D'.
- \* [ ]: ASCII code character corresponding to "Space Bar" separating command, Set ID, and data.

### 2. OK Acknowledgement

[Command2] [ ] [Set ID] [ ] [OK] [Data] [x]

- \* If a set receives the data successfully, it returns ACK in the above format. Here, the data is the information from the product indicating its current status if it is in data read mode. The product itself will return the data from the PC if it is in data write mode.

### 3. Error Acknowledgement

[Command2] [ ] [Set ID] [ ] [NG] [Data] [x]

- \* If a set receives an abnormal piece of data such as a non-supported function or there is a communication error, it returns ACK in the above format.
- Data [01]: illegal code  
(This command is not supported.)
- [02]: not support function  
(This function is not supported.)
- [03]: wait and retry  
(Wait and try again after a while.)

### Data Structure

10	16																		
0	00	10	16	10	16	10	16	10	16	10	16	10	16	10	16	10	16	10	16
1	01	11	0B	21	15	31	1F	41	29	51	33	61	3D	71	47	81	51	91	5B
2	02	12	0C	22	16	32	20	42	2A	52	34	62	3E	72	48	82	52	92	5C
3	03	13	0D	23	17	33	21	43	2B	53	35	63	3F	73	49	83	53	93	5D
4	04	14	0E	24	18	34	22	44	2C	54	36	64	40	74	4A	84	54	94	5E
5	05	15	0F	25	19	35	23	45	2D	55	37	65	41	75	4B	85	55	95	5F
6	06	16	10	26	1A	36	24	46	2E	56	38	66	42	76	4C	86	56	96	60
7	07	17	11	27	1B	37	25	47	2F	57	39	67	43	77	4D	87	57	97	61
8	08	18	12	28	1C	38	26	48	30	58	3A	68	44	78	4E	88	58	98	62
9	09	19	13	29	1D	39	27	49	31	59	3B	69	45	79	4F	89	59	99	63
10	0A	20	14	30	1E	40	28	50	32	60	3C	70	46	80	50	90	5A	100	64



## Command Reference List

	Command 1	Command 2	Data
<b>01. Power Sources</b>	k	a	00 - 01
<b>02. Aspect Ratio</b>	k	c	*
<b>03. Blank Image</b>	k	d	00 - 01
<b>04. Contrast</b>	k	g	00 - 64
<b>05. Brightness</b>	k	h	00 - 64
<b>06. Color</b>	k	i	00 - 64
<b>07. Color</b>	k	j	00 - 64
<b>08. Sharpness</b>	k	k	00 - 32
<b>09. OSD Control</b>	k	l	00 - 01
<b>10. Key Lock</b>	k	m	00 - 01
<b>11. Color Temp</b>	k	u	00 - 04 (excluding 03)
<b>12. Black Level</b>	n	m	00 - 01
<b>13. Energy Saving</b>	n	p	00 - 01
<b>14. Auto Config.</b>	j	u	01
<b>15. Input</b>	x	b	*
<b>16. Key</b>	m	c	*
<b>17. Picture Mode</b>	n	s	00 - 07
<b>18. Mute</b>	k	e	00 - 01
<b>19. Volume</b>	k	f	00 - 64
<b>20. Monitor Out</b>	n	r	00 - 02

- For more information on the data (\*), see the description on the next page.

**01. Power (Command: ka)**

⇒ Controls Power On/Off of a set.

Only Power On/Off control is available while Magical Mirroring and Wi-Fi Screen Share are running.

Transmission

```
[k][a][Set ID][Data][Cr]
```

Data 00: Power Off  
01: Power On

Ack

```
[a][Set ID][OK][Data][x]
```

Data 00: Power Off  
01: Power On

⇒ Shows the power on/off status.

Transmission

```
[k][a][Set ID][FF][Cr]
```

Ack

```
[a][Set ID][OK][Data][x]
```

Data 00: Power Off  
01: Power On

\* As with other functions, if data is transmitted as '0xFF' in the above format, the current status of each function is returned as a feedback in Ack data.

**02. Aspect Ratio (Command: kc)**

⇒ Adjusts the aspect ratio.

Transmission

```
[k][c][Set ID][Data][Cr]
```

Data 01 : 4:3  
02 : 16:9  
04: Zoom  
06: Set By Program  
08: Full  
09: Just scan  
10 - 1f: Cinema Zoom 1 - 16

Ack

```
[c][Set ID][OK][Data][x]
```

Data 01 : 4:3  
02 : 16:9  
04: Zoom  
06: Set By Program  
08: Full  
09: Just scan  
10 - 1f: Cinema Zoom 1 - 16

**03. Blank Image (Command: kd)**

⇒ Enables/disables the blank image.

Transmission

```
[k][d][Set ID][Data][Cr]
```

Data 00: Disables the blank image (picture on).  
01: Enables the blank image (picture off).

Ack

```
[d][Set ID][OK][Data][x]
```

Data 00: Disables the blank image (picture on).  
01: Enables the blank image (picture off).

**04. Contrast (Command: kg)**

⇒ Adjusts the contrast.  
It is disabled when Black Mode is selected.

Transmission

```
[k][g][Set ID][Data][Cr]
```

Data Min: 0H - Max: 64H  
(\* Transmitted in hexadecimal code)  
\* See the data structure.

Ack

```
[g][Set ID][OK][Data][x]
```

Data Min: 0H - Max: 64H

**06. Color (Command: ki)**

⇒ Adjusts the color.  
It is disabled when Black Mode is selected.

Transmission

```
[k][i][Set ID][Data][Cr]
```

Data Min: 0H - Max: 64H  
(\* Transmitted in hexadecimal code)  
\* See the data structure.

Ack

```
[i][Set ID][OK][Data][x]
```

Data Min: 0H - Max: 64H

**05. Brightness (Command: kh)**

⇒ Adjusts the brightness.  
It is disabled when Black Mode is selected.

Transmission

```
[k][h][Set ID][Data][Cr]
```

Data Min: 0H - Max: 64H  
(\* Transmitted in hexadecimal code)  
\* See the data structure.

Ack

```
[h][Set ID][OK][Data][x]
```

Data Min: 0H - Max: 64H

**07. Tint (Command: kj)**

⇒ Adjusts the tint.  
It is disabled when Black Mode is selected.

Transmission

```
[k][j][Set ID][Data][Cr]
```

Data Red: 0H - Green: 64H  
(\* Transmitted in hexadecimal code)  
\* See the data structure.

Ack

```
[j][Set ID][OK][Data][x]
```

Data Red: 0H - Green: 64H

**08. Sharpness (Command: kk)**

⇒ Adjusts the sharpness.

It is disabled when Black Mode is selected.

Transmission

```
[k][k][Set ID][Data][Cr]
```

Data Min: 0H - Max: 32H

(\* Transmitted in hexadecimal code)

\* See the data structure.

Ack

```
[k][Set ID][OK][Data][x]
```

Data Min: 0H - Max: 32H

**09. OSD Control (Command: kl)**

⇒ Selects OSD On/Off.

Transmission

```
[k][l][Set ID][Data][Cr]
```

Data 00: OSD selection mode off  
01: OSD selection mode on

Ack

```
[l][Set ID][OK][Data][x]
```

Data 00: OSD selection mode off  
01: OSD selection mode on

**10. Key Lock (Command: km)**

⇒ Sets the function of locking the remote control and local keypad of the remote control.

Transmission

```
[k][m][Set ID][Data][Cr]
```

Data 00 : Disables the key lock.  
01 : Enables the key lock.

Ack

```
[m][Set ID][OK][Data][x]
```

Data 00 : Disables the key lock.  
01 : Enables the key lock.

\* This function is used when the remote control is not being used. If remote control lock is on, none of the buttons of the local keypad and remote control will work.

**11. Color Temperature (Command: ku)**

⇒ Adjusts the value of color temperature. It is disabled when Black Mode is selected.

Transmission

```
[k][u][Set ID][Data][Cr]
```

Data 00: Medium 01: Cool  
02: Warm 04: Medium  
(\* Transmitted in hexadecimal code)

\*Data 03 is not used.

Ack

```
[u][Set ID][OK][Data][x]
```

Data 00: Medium 01: Cool  
02: Warm 04: Medium

**12. Black Level (Command: nm)**

⇒ Adjusts the value of black level.  
It is disabled when Black Mode is selected.

Transmission

```
[n][m][Set ID][Data][Cr]
```

Data 00: Low      01: High  
(\* Transmitted in hexadecimal code)

Ack

```
[m][Set ID][OK][Data][x]
```

Data 00: Low      01: High

**13. Energy Saving (Command: np)**

⇒ Sets the energy saving mode.

Transmission

```
[n][p][Set ID][Data][Cr]
```

Data 00: Minimum  
Data 01: Maximum  
(\* Transmitted in hexadecimal code)

Ack

```
[p][Set ID][OK][Data][x]
```

Data 00: Minimum  
Data 01: Maximum

**14. Auto Configure (Command: ju)**

⇒ Adjusts the image position by using RGB Mode and minimizing the image shake.

Transmission

```
[j][u][Set ID][Data][Cr]
```

Data 01 : To set  
(\* Transmitted in hexadecimal code)

Ack

```
[u][Set ID][OK][Data][x]
```

Data 01 : To set

**15. Input Select (Command: xb)**

⇒ Select the input signal of the set.

Transmission

```
[x][b][Set ID][Data][Cr]
```

Data 20: External input    40: Component  
60: RGB 1    61: RGB 2  
90: HDMI  
(\* Transmitted in hexadecimal code)

Ack

```
[b][Set ID][OK][Data][x]
```

Data 20: External input    40: Component1  
41: Component2    60: RGB 1  
61: RGB 2    90: HDMI

**16. Key (Command: mc)**

⇒ Sends a key code of the IR remote control.

Transmission

```
[m][c][Set ID][Data][Cr]
```

Data Key Code: see 62 Page .  
(\* Transmitted in hexadecimal code)

Ack

```
[c][Set ID][OK][Data][x]
```

Data Key Code

**17. Picture Mode (Command: ns)**

⇒ Sets the picture mode.

Transmission

```
[n][s][Set ID][Data][Cr]
```

Data 00: Vivid	01: Standard
02: ECO	03: Cinema
04: Game	05: Expert1
06: Expert2	07: Black mode

(\* Transmitted in hexadecimal code)

Ack

```
[s][Set ID][OK][Data][x]
```

Data 00: Vivid	01: Standard
02: ECO	03: Cinema
04: Game	05: Expert1
06: Expert2	07: Black mode

(\* Transmitted in hexadecimal code)

**18. Mute (Command: ke)**

⇒ Enables/disables the mute function.

Transmission

```
[k][e][Set ID][Data][Cr]
```

Data 00 : Turns on the mute function (volume off).  
01 : Turns off the mute function (volume on).

Ack

```
[e][Set ID][OK][Data][x]
```

Data 00 : Turns on the mute function (volume off).  
01 : Turns off the mute function (volume on).

**19. Volume (Command: kf)**

⇒ Adjusts the volume.

Transmission

```
[k][f][Set ID][Data][Cr]
```

Data Min: 0H - Max: 64H  
(\* Transmitted in hexadecimal code)  
\* See the data structure.

Ack

```
[f][Set ID][OK][Data][x]
```

Data Vol 00: 0H - Vol 100: 64H

**20. Monitor Out (Command: nr)**

⇒ Select either RGB1 or 2 input as Monitor Out.

Transmission

```
[n][r][Set ID][Data][Cr]
```

Data 00: RGB 1 01: RGB 2  
02: Auto

Ack

```
[r][Set ID][OK][Data][x]
```

Data 00: RGB 1 01: RGB 2  
02: Auto

## &lt;Key Code&gt;

Key Name	Key Code	Key Name	Key Code
	0x40	YELLOW	0x63
	0x41	BLUE	0x61
>	0x06	Keystone ▲	0xA4
<	0x07	Keystone ▼	0xA5
Power Sources	0xAD	Microphones	0xE4
INPUT	0xEF	USB	0x7C
Settings	0x43	Mute	0x09
↶ (Previous)	0x28	Self Check	0x81
Confirm	0x44	STILL	0xBC
Energy Saving	0x95	Exit ⏏	0x5B
Aspect Ratio	0x79	0	0x10
Blank Image	0x84	1	0x11
Picture Mode	0x4D	2	0x12
Auto Config.	0x92	3	0x13
Q.MENU	0x45	4	0x14
Sleep Timer	0x0E	5	0x15
AV MODE	0x30	6	0x16
Volume +	0x02	7	0x17
Volume -	0x03	8	0x18
RED	0x72	9	0x19
GREEN	0x71		

# SPECIFICATIONS

MODELS	BG630 (BG630-JL) BG650 (BG650-JL)	
Resolution (Pixel)	1024 (H) × 768 (V)	
Aspect ratio	4:3 (H:V)	
Panel size (mm)	16	
Projection distance (Video size)	Wide: 873 mm-8,952 mm Tele: 1,052 mm-10,752 mm	
Ratio of upward projection	90 %	
Working range of the remote control	6 m	
Audio output	5W MONO	
Reception type	NTSC M, NTSC 4.43, PAL-B,D,G,H,I, PAL M, PAL N, PAL 60, SECAM	
Height (mm)	100 (including feet)	
Width (mm)	356	
Depth (mm)	246.4	
Weight (kg)	3.6	
Headphone, earphone	Impedance: 16 Ω / Output power: 10mW / Jack thickness: 3.5mm	
USB Device	5 V, 0.5 A (Max.)	
Power Sources	AC 100 to 240 V, 50 Hz/ 60 Hz	
Operation environment	Temperature	
	Operation	0 °C - 40 °C
	Storage	-20 °C - 60 °C
	Relative humidity	
	Operation	0 % - 75 %
	Storage	0 % - 85 %

- The images used and specifications stated in this owner's manual are subject to change to improve the performance of the product.
- The power consumption of this projector is 0.5W or lower when it is in the standby mode. Therefore, unplug the power plug from the outlet to prevent unnecessary power consumption when you do not use the projector for a long time.

### Wireless LAN module (WN8122E1) specification

<b>Standard</b>	IEEE802.11a/b/g/n
<b>Frequency Range</b>	2400 to 2483.5 MHz 5150 to 5250 MHz 5725 to 5850 MHz
<b>"Output Power (Max.)"</b>	802.11a: 16.5 dBm 802.11b: 16 dBm 802.11g: 15.5 dBm 802.11n - 2.4GHz: 15.5 dBm 802.11n - 5GHz: 16.5 dBm"

- Because band channel used by the country could be different, the user can not change or adjust the operating frequency and this product is set for the regional frequency table.
- Contains FCC ID: BEJWN8122E1 / Contains IC: 2703H-WN8122E1

### Supported Monitor Display

<b>Resolution</b>	<b>Horizontal Frequency (kHz)</b>	<b>Vertical Frequency (Hz)</b>
640 x 350	31.468	70.09
640 x 480	31.469	59.94
720 x 400	31.469	70.08
800 x 600	37.879	60.31
1024 x 768	48.363	60.00
1152 x 864	54.348	60.053
1280 x 800	49.7	59.81
1280 x 1024	63.981	60.02
1400 x 1050	65.3	60
1680 x 1050	65.3	59.95

- If an invalid signal is input into the product, it will not be displayed properly on the screen or a message such as "No Signal" or "Invalid Mode" will be displayed.
- The product supports the DDC1/2B type as the Plug & Play function (Auto-recognition of PC monitor).
- PC synchronization signal types supported: Separate type synchronization.
- 1024 x 768 is recommended as the best picture quality in the PC mode.

### HDMI/DVI-DTV/WiDi mode supported

Resolution	Horizontal Frequency (kHz)	Vertical Frequency (Hz)
480p	31.47	60
	31.47	59.94
	31.5	60
576p	31.25	50
720P	45	60
	44.96	59.94
	37.5	50
1080i	33.75	60
	33.72	59.94
	28.125	50
1080p	67.5	60
	67.432	59.939
	27	24
	26.97	23.976
	33.75	30
	33.71	29.97
56.25	50	

### Component Port Connection

Signal	Component
480i/576i	o
480p/576p	o
720p/1080i	o
1080p	o

### Open Source software Information

To obtain the source code under GPL, LGPL, MPL and other open source licenses, that is contained in this product,

please visit

<http://opensource.lge.com> .

In addition to the source code, all referred license terms, warranty disclaimers and copyright notices are available for download.

LG Electronics will also provide open source code to you on CD-ROM for a charge covering the cost of performing such distribution (such as the cost of media, shipping and handling) upon email request to [opensource@lge.com](mailto:opensource@lge.com).

This offer is valid for three (3) years from the date on which you purchased the product.



The model and serial number of the projector are located on the back or on the side of the projector. Record them below should you ever need service.

MODEL \_\_\_\_\_

SERIAL \_\_\_\_\_