

Dell™ M410HD Projector

User's Guide

Notes, Notices, and Cautions



NOTE: A NOTE indicates important information that helps you make better use of your projector.



NOTICE: A NOTICE indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.



CAUTION: A CAUTION indicates a potential for property damage, personal injury, or death.

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Model M410HD

December 2009 Rev. A00

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1

Your Dell Projector

Your projector comes with all the items shown below. Ensure that you have all the items, and contact Dell™ if anything is missing.

Package Contents

Power cable



1.8m VGA cable (VGA to VGA)



Carrying case



Remote control



CD User's Guide & Documentation

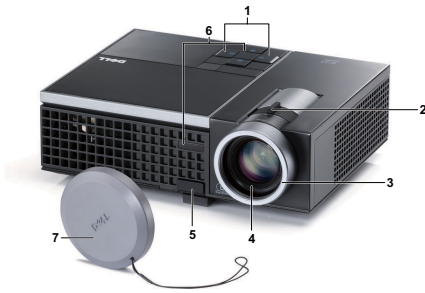


AAA Batteries (2)

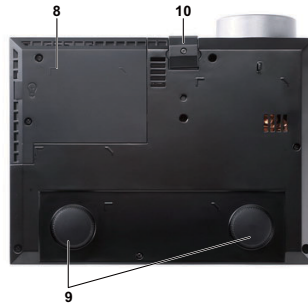


About Your Projector

Top View



Bottom View



| | |
|----|----------------------------------------|
| 1 | Control panel |
| 2 | Zoom tab |
| 3 | Focus ring |
| 4 | Lens |
| 5 | Elevator button for height adjustments |
| 6 | IR receivers |
| 7 | Lens cap |
| 8 | Lamp cover |
| 9 | Tilt adjustment wheel |
| 10 | Elevator foot |

CAUTION: Safety Instructions

- 1 Do not use the projector near appliances that generate a lot of heat.
- 2 Do not use the projector in areas where there is an excessive amount of dust. The dust may cause the system to fail and the projector will automatically shutdown.
- 3 Ensure that the projector is mounted in a well-ventilated area.
- 4 Do not block the ventilation slots and openings on the projector.
- 5 Ensure the projector operates between ambient temperatures (5°C to 35°C).
- 6 Do not try to touch the ventilation outlet as it can become very hot after the projector has been turned on or immediately after it is turned off.

7 Do not look into the lens while the projector is on as it may cause injury to your eyes.

8 Do not place any objects near or in front of the projector or cover its lens while the projector is on as the heat may cause the object to melt or burn.



NOTE: For more information, see the *Safety Information* that is shipped with your projector.

2

Connecting Your Projector



| | | | |
|---|-----------------------------|---|------------------------|
| 1 | USB remote connector | 6 | Audio output connector |
| 2 | VGA input (D-sub) connector | 7 | Audio input connector |
| 3 | HDMI connector | 8 | Security cable slot |
| 4 | S-video connector | 9 | Power cord connector |
| 5 | Composite video connector | | |



CAUTION: Before you begin any of the procedures in this section, follow the Safety Instructions as described on page 6.

Connecting to a Computer

Connecting a Computer Using a VGA Cable



| | |
|---|----------------------|
| 1 | Power cord |
| 2 | VGA to VGA cable |
| 3 | USB-A to USB-B cable |



NOTE: The USB cable is not provided with your projector.



NOTE: The USB cable must be connected if you want to use the Page Up and Page Down features on the remote control.

Connecting a DVD Player

Connecting a DVD Player Using an S-video Cable

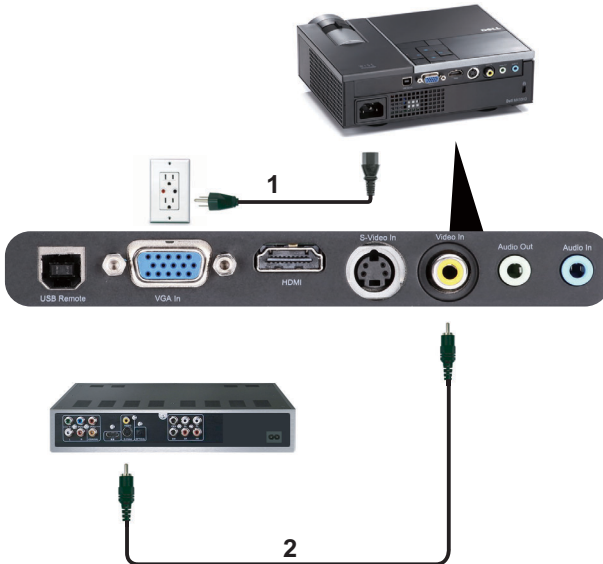


| | |
|---|---------------|
| 1 | Power cord |
| 2 | S-video cable |



NOTE: The S-video cable is not shipped with your projector. You can purchase the S-Video extension (50 ft/100 ft) cable on the Dell website at dell.com.

Connecting a DVD Player Using a Composite Video Cable

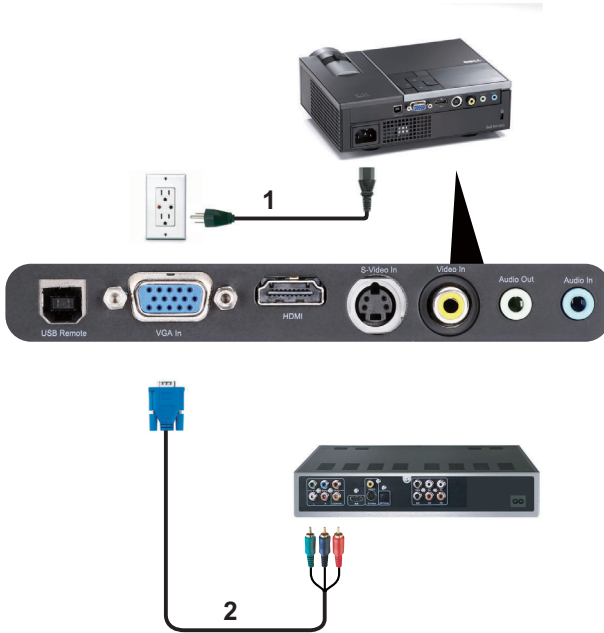


| | |
|---|-----------------------|
| 1 | Power cord |
| 2 | Composite video cable |



NOTE: The Composite Video cable is not shipped with your projector. You can purchase the Composite Video Extension (50 ft/100 ft) cable on the Dell website at dell.com.

Connecting a DVD Player Using a Component Video Cable

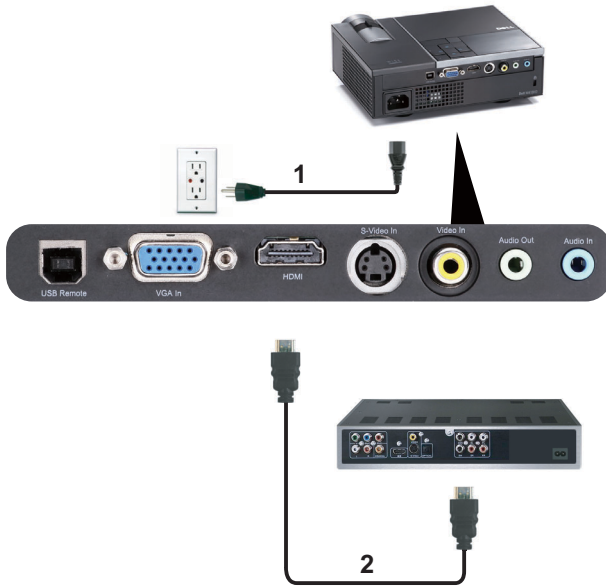


| | |
|---|------------------------------|
| 1 | Power cord |
| 2 | VGA to Component Video cable |



NOTE: The VGA to Component Video cable is not shipped with your projector. You can purchase the VGA to Component Video Extension (50 ft/100 ft) cable on the Dell website at dell.com.

Connecting a DVD Player Using an HDMI Cable




| | |
|---|------------|
| 1 | Power cord |
| 2 | HDMI cable |



NOTE: The HDMI cable is not shipped with your projector.


Using Your Projector

Turning Your Projector On


 **NOTE:** Turn on the projector before you turn on the source (computer, DVD player, etc.). The **Power** button light blinks blue until pressed.

- 1 Remove the lens cap.
- 2 Connect the power cord and appropriate signal cables. For information about connecting the projector, see "Connecting Your Projector" on page 8.
- 3 Press the **Power** button (see "Using the Control Panel" on page 18 to locate the **Power** button).
- 4 Turn on your source (computer, DVD player, etc.)
- 5 Connect your source to the projector using the appropriate cable. See "Connecting Your Projector" on page 8 for instructions to connect your source to the projector.
- 6 By default, the input source of projector is set to VGA-In. Change the input source of projector if necessary.
- 7 If you have multiple sources connected to the projector, press the **Source** button on the remote control or control panel to select the desired source. See "Using the Control Panel" on page 18 and "Using the Remote Control" on page 21 to locate the **Source** button.

Turning Your Projector Off


 **NOTICE:** Unplug the projector after properly shutting down as explained in the following procedure.

- 1 Press the **Power** button.

 **NOTE:** The "**Press Power Button to Turn off Projector**" message will appear on the screen. The message disappears after 5 seconds or you can press the **Menu** button to clear it.

- 2 Press the **Power** button again. The cooling fans continue to operate for 120 seconds.

3 To power off the projector quickly, press the **Power** button and hold for 1 second while the projector's cooling fans are still running.

 **NOTE:** Before you turn on the projector again, wait for 60 seconds to allow the internal temperature to stabilize.

4 Disconnect the power cord from the electrical outlet and the projector.

Adjusting the Projected Image

Raising the Projector Height

1 Press the **Elevator** button.

2 Raise the projector to the desired display angle, and then release the button to lock the elevator foot into position.

3 Use the tilt adjustment wheel to fine-tune the display angle.

Lowering the Projector Height

1 Press the **Elevator** button.

2 Lower the projector, and then release the button to lock the elevator foot into position.



| | |
|---|------------------------------------------------|
| 1 | Elevator button |
| 2 | Elevator foot (Angle of tilt: 0 to 9,5 degree) |
| 3 | Tilt adjustment wheel |

Adjusting the Projector Zoom and Focus

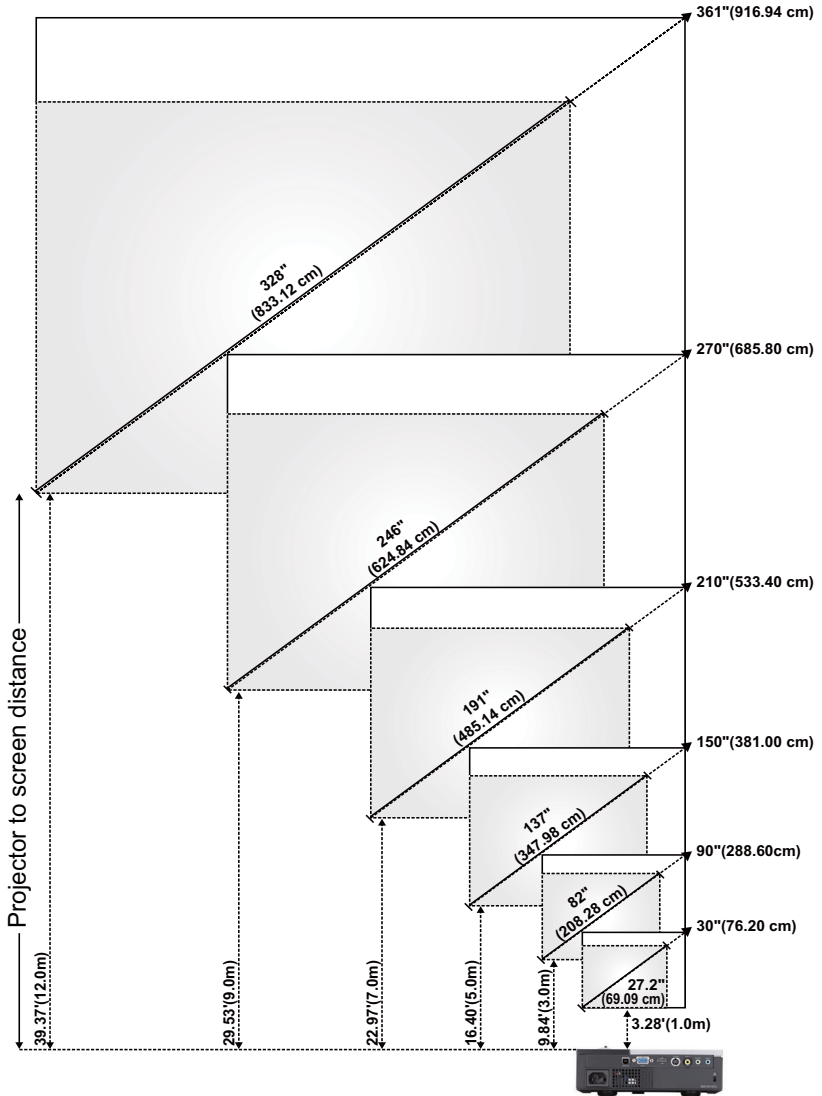
⚠ CAUTION: To avoid damaging the projector, ensure that the zoom lens and elevator foot are fully retracted before moving the projector or placing the projector in its carrying case.

- 1 Rotate the zoom tab to zoom in and out.
- 2 Rotate the focus ring until the image is clear. The projector focuses at distances ranging between 3.28 ft to 39.37 ft (1 m to 12 m).



| | |
|---|------------|
| 1 | Zoom tab |
| 2 | Focus ring |

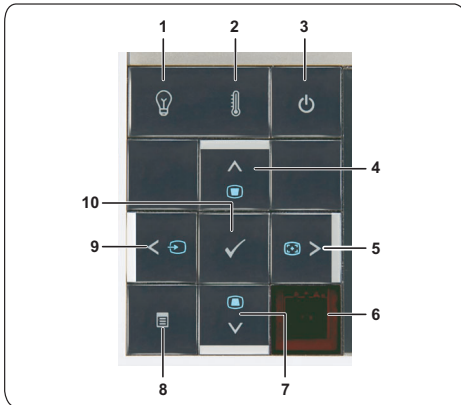
Adjusting Projection Image Size










| | | | | | | | |
|-------------------|------------|---------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| Screen (Diagonal) | Max. | 30" (76.20 cm) | 90" (228.60cm) | 150" (381.00 cm) | 210" (533.40 cm) | 270" (685.80 cm) | 361" (916.94 cm) |
| | Min. | 27.2" (69.09 cm) | 82" (208.28 cm) | 137" (347.98 cm) | 191" (485.14 cm) | 246" (624.84 cm) | 328" (833.12 cm) |
| Screen Size | Max. (WxH) | 25.59" X 15.75" | 76.38" X 47.64" | 127.17" X 79.53" | 177.95" X 111.02" | 228.74" X 142.91" | 304.72" X 190.55" |
| | | (65 cm X 40 cm) | (194 cm X 121 cm) | (323 cm X 202 cm) | (452 cm X 282 cm) | (581 cm X 363 cm) | (774 cm X 484 cm) |
| | Min. (WxH) | 23.23" X 14.57" | 69.29" X 43.31" | 115.75" X 72.44" | 162.20" X 101.18" | 208.27" X 130.31" | 277.95" X 173.62" |
| | | (59 cm X 37 cm) | (176 cm X 110 cm) | (294 cm X 184 cm) | (412 cm X 257 cm) | (529 cm X 331 cm) | (706 cm X 441 cm) |
| Hd | Max. | 17.72" (45 cm) | 53.54" (136 cm) | 89.37" (227 cm) | 124.80" (317 cm) | 160.63" (408 cm) | 214.17" (544 cm) |
| | Min. | 16.14" (41 cm) | 48.82" (124 cm) | 81.50" (207 cm) | 113.78" (289 cm) | 146.46" (372 cm) | 195.28" (496 cm) |
| Distance | | 3.28' (1.0m) | 9.84' (3.0m) | 16.40' (5.0m) | 22.97' (7.0m) | 29.53' (9.0m) | 39.37' (12.0m) |

* This graph is for user reference only.

Using the Control Panel




















| | | |
|---|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | LAMP warning light | <p>If the LAMP amber indicator is on or blinking, one of the following problems could be occurring:</p> <ul style="list-style-type: none"> • Lamp is reaching its end of usable life • Lamp module is not properly installed • Lamp driver failure • Color wheel failure <p>For more information, see "Troubleshooting Your Projector" on page 41 and "Guiding Signals" on page 45.</p> |
| 2 | TEMP warning light | <p>If the TEMP amber indicator is on or blinking, one of the following problems could be occurring:</p> <ul style="list-style-type: none"> • Internal temperature of the projector is too high • Color wheel failure <p>For more information, see "Troubleshooting Your Projector" on page 41 and "Guiding Signals" on page 45.</p> |
| 3 | Power | <p>Turns the projector on or off. For more information, see "Turning Your Projector On" on page 14 and "Turning Your Projector Off" on page 14.</p> |
| 4 | Up  / Keystone adjustment | <p>Press to navigate through the On-Screen Display (OSD) Menu items.</p> <p>Press to adjust image distortion caused by tilting the projector (+40/-35 degrees).</p> |
| 5 | Right  / Auto Adjust | <p>Press to navigate through the On-Screen Display (OSD) Menu items.</p> <p>Press to synchronize the projector to the input source.</p> <p> NOTE: Auto Adjust does not operate if the on-screen display (OSD) is displayed.</p> |
| 6 | IR Receiver | <p>Point the remote control towards the IR receiver and press a button.</p> |

| | | |
|----|--------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 7 | Down  / Keystone adjustment | <p>Press to navigate through the On-Screen Display (OSD) Menu items.</p> <p>Press to adjust image distortion caused by tilting the projector (+40/-35 degrees).</p> |
| 8 | Menu  | <p>Press to activate the OSD. Use the directional keys and the Menu button to navigate through the OSD.</p> |
| 9 | Left  / Source | <p>Press to navigate through the On-Screen Display (OSD) Menu items.</p> <p>Press to toggle through Analog RGB, Composite, Component (YPbPr via VGA), HDMI, and S-video sources when multiple sources are connected to the projector.</p> |
| 10 | Enter  | <p>Press to confirm the selection item.</p> |


Using the Remote Control




| | | |
|---|-------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | Power  | Turns the projector on or off. For more information, see "Turning Your Projector On" on page 14 and "Turning Your Projector Off" on page 14. |
| 2 | Enter  | Press to confirm the selection. |
| 3 | Right  | Press to navigate through the On-Screen Display (OSD) Menu items. |
| 4 | Down  | Press to navigate through the On-Screen Display (OSD) Menu items. |

| | | |
|----|---------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 5 | Freeze | Press to pause the screen image. |
| 6 | Page up  | Press to move to previous page.  NOTE: The USB cable must be connected if you want to use the Page Up feature. |
| 7 | Mute  | Press to mute or un-mute the projector speaker. |
| 8 | Page down  | Press to move to next page.  NOTE: The USB cable must be connected if you want to use the Page Down feature. |
| 9 | Video mode | The projector has preset configurations that are optimized for displaying data (presentation slides) or video (movies, games, etc.). Press the Video Mode button to toggle between Presentation mode , Bright mode , Movie mode , sRGB , or Custom mode . Pressing the Video Mode button once will show the current display mode. Pressing the Video Mode button again will switch between modes. |
| 10 | Blank screen | Press to hide/unhide the image. |
| 11 | Up  | Press to navigate through the On-Screen Display (OSD) Menu items. |
| 12 | Left  | Press to navigate through the On-Screen Display (OSD) Menu items. |
| 13 | Menu  | Press to activate the OSD. |
| 14 | Volume up  | Press to increase the volume. |
| 15 | Laser  | Point the remote control at the screen, press and hold the laser button to activate the laser light.  Caution: Do not look into the laser point when it is on. Avoid shining the laser light into eyes. |
| 16 | Volume down  | Press to decrease the volume. |
| 17 | Keystone adjustment  | Press to adjust image distortion caused by tilting the projector (+40/-35 degrees). |
| 18 | Source | Press to switch between Analog RGB, Composite, Component (YPbPr, via VGA), HDMI, and S-video sources. |

| | | |
|----|---------------------|-----------------------------------------------------------------------------------------------------------------|
| 19 | Auto adjust | Press to synchronize the projector with the input source. Auto adjust does not operate if the OSD is displayed. |
| 20 | Keystone adjustment | Press to adjust image distortion caused by tilting the projector (+40/-35 degrees). |



Installing the Remote Control Batteries

 **NOTE:** Remove the batteries from the remote control when not in use.

1 Press the tab to lift the battery compartment cover.




2 Check the polarity (+/-) marking on the batteries.



3 Insert the batteries and align their polarity correctly according to the marking in the battery compartment.

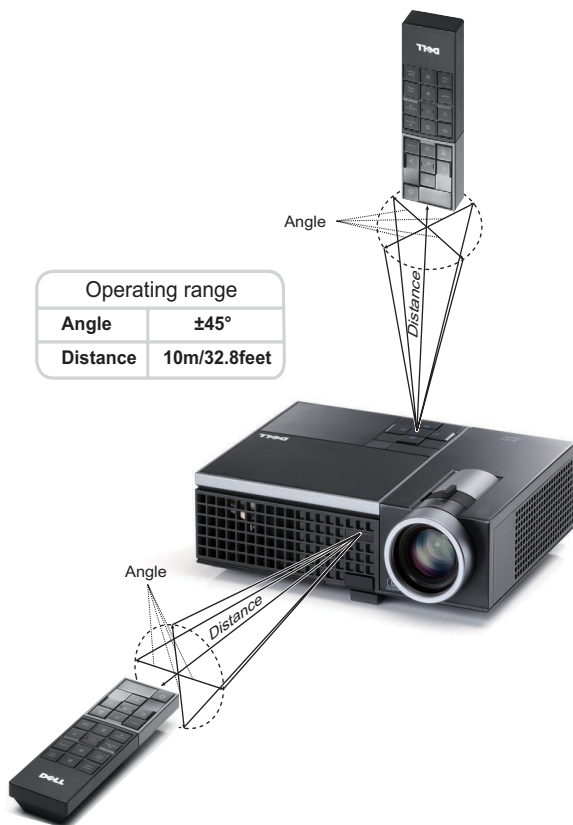


 **NOTE:** Avoid mixing different types of batteries or using new and old batteries together.

4 Slip the battery cover back.












Operating Range With Remote Control



NOTE: Actual operating range may slightly differ from the diagram. Weak batteries will also prevent the remote control from properly operating the projector.

Using the On-Screen Display

- The projector has a multi-language On-Screen Display (OSD) Menu that can be displayed with or without an input source.
- To navigate through the tabs in the Main Menu, press the  or  buttons on your projector's control panel or remote control.
- To select a submenu, press the  button on your projector's control panel or remote control.
- To select an option, press the  or  buttons on your projector's control panel or remote control. The color changes to dark blue. When an item is selected, the color changes to dark blue.
- Use the  or  buttons on the control panel or remote control to adjust the settings.
- To go back to Main Menu, go to Back tab and press the  button on the control panel or the remote control.
- To exit the OSD, go to EXIT tab and press the  button or press the **Menu** button directly on the control panel or the remote control.

Main Menu



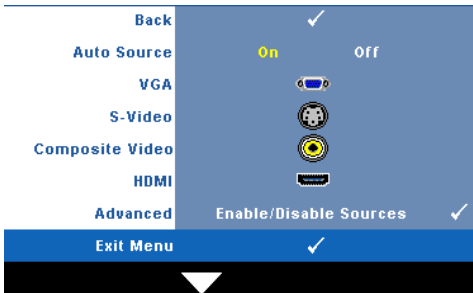
AUTO-ADJUST

Auto Adjust automatically adjusts the projector's **Frequency** and **Tracking** in PC mode. While Auto Adjustment is in progress, the following message appears on the screen:

Please wait...

INPUT SELECT

The Input Select menu allows you to select your projector's input source.



AUTO SOURCE—Select **Off** (the default) to lock the current input signal. If you press the **Source** button when the **Auto Source** mode is set to **Off**, you can manually select the input signal. Select **On** to auto detect the available input signals. If you press the **Source** button when the projector is on, it automatically finds the next available input signal.

VGA—Press to detect VGA signal.

S-VIDEO—Press to detect S-Video signal.

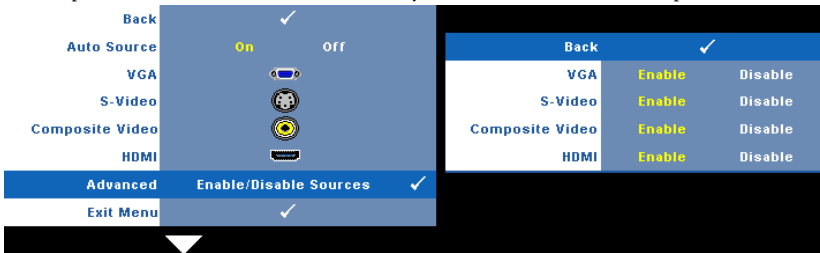
COMPOSITE VIDEO—Press to detect Composite Video signal.

HDMI—Press to detect HDMI signal.

ADVANCED—Press to activate Input Select Advanced menu.

INPUT SELECT ADVANCED

The Input Select Advanced menu allows you to enable or disable input sources.



VGA—Use and to enable or disable VGA input.

S-VIDEO—Use and to enable or disable S-Video input.

COMPOSITE VIDEO—Use and to enable or disable Composite Video input.

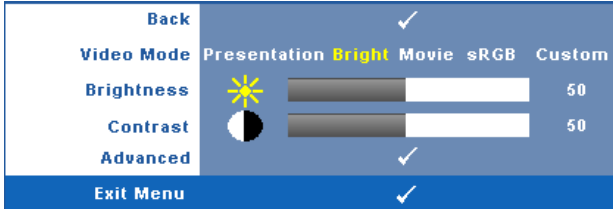
HDMI—Use and to enable or disable HDMI input.




NOTE: You cannot disable your current input source. At anytime, a minimum of two input sources have to be enabled.



PICTURE (in PC Mode)



Using the **Picture** menu, you can adjust the display settings of your projector. The **Picture** menu, provides the following options:



VIDEO MODE—Allows you to optimize the display image: **Presentation**, **Bright**, **Movie**, **sRGB** (provides more accurate color representation), and **Custom** (set your preferred settings). If you adjust the settings for **Brightness**, **Contrast**, **Saturation**, **Sharpness**, **Tint**, and **Advanced**, the projector automatically switches to **Custom**.

 **NOTE:** If you adjust the settings for **Brightness**, **Contrast**, **Saturation**, **Sharpness**, **Tint**, and **Advanced** the projector automatically switches to **Custom**.

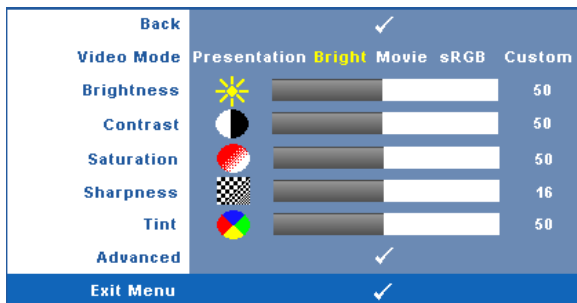
BRIGHTNESS—Use  and  to adjust the brightness of the image.

CONTRAST—Use  and  to adjust the display contrast.

ADVANCED—Press  to activate **Picture Advance** Menu. See "PICTURE ADVANCED" on page 29.

PICTURE (in Video Mode)



Using the **Picture** menu, you can adjust the display settings of your projector. The **Picture** menu provides the following options:







VIDEO MODE—Allows you to optimize the display image: **Presentation**, **Bright**, **Movie**, **sRGB** (provides more accurate color representation), and **Custom** (set your preferred settings). If you adjust the settings for **Brightness**, **Contrast**,


Saturation, Sharpness, Tint, and Advanced the projector automatically switches to Custom.



 **NOTE:** If you adjust the settings for **Brightness, Contrast, Saturation, Sharpness, Tint, and Advanced** the projector automatically switches to **Custom**.

BRIGHTNESS—Use  and  to adjust the brightness of the image.

CONTRAST—Use  and  to adjust the display contrast.

SATURATION—Allows you to adjust the video source from black and white to fully saturated color. Press  to decrease the amount of color in the image and  to increase the amount of color in the image.

SHARPNESS—Press  to decrease the sharpness and  to increase the sharpness.

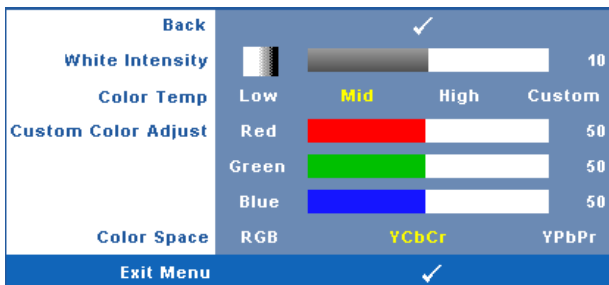
TINT—Press  to increase the amount of green in the image and  to increase the amount of red in the image (available for NTSC only).



ADVANCED—Press  to activate Picture Advance Menu. See "PICTURE ADVANCED" below.

 **NOTE:** **Saturation, Sharpness, and Tint** are only available when input source is from Composite or S-Video.

PICTURE ADVANCED

Using the Picture Advanced menu, you can adjust the display settings of your projector. The Picture Advanced menu provides the following options:



WHITE INTENSITY—Use  and  to adjust the display white intensity.

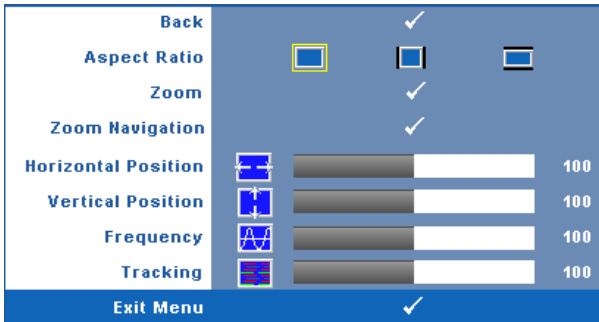
COLOR TEMP—Allows you to adjust the color temperature. The screen appears cooler at higher color temperatures and warmer at lower color temperatures. When you adjust the values in the **Color Adjust** menu, the Custom mode is activated. The values are saved in the Custom mode.

CUSTOM COLOR ADJUST—Allows you to manually adjust the colors red, green, and blue.

COLOR SPACE—Allows you to select the color space, options are: RGB, YCbCr, and YPbPr.

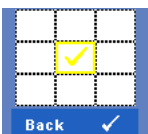
DISPLAY (in PC Mode)

Using the **Display** menu, you can adjust the display settings of your projector. The **Picture** menu provides the following options:



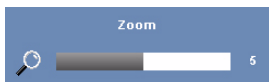
ASPECT RATIO—Allows you to select the aspect ratio to adjust how the image appears.

- Original — Select Original to maintain the aspect ratio of image projected according to input source.
- 4:3 — The input source scales to fit the screen and projects a 4:3 image.
- Wide — The input source scales to fit the width of the screen to project a wide screen image.



ZOOM—Press to activate **Zoom** menu.

Select the area to zoom and press to view zoomed image.





Adjust the image scale by pressing or and press to view.



ZOOM NAVIGATION—Press to activate **Zoom Navigation** menu.

Use to navigate projection screen.

HORIZONTAL POSITION—Press to move the image to the left and to move the image to the right.

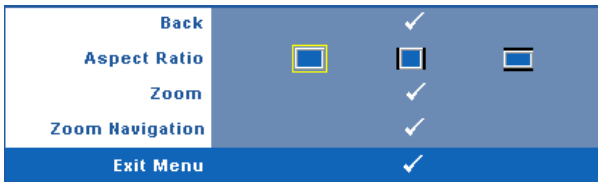
VERTICAL POSITION—Press  to move the image down and  to move the image up.

FREQUENCY—Allows you to change the display data clock frequency to match the frequency of your computer graphics card. If you see a vertical flickering wave, use **Frequency control** to minimize the bars. This is a coarse adjustment.




TRACKING—Synchronize the phase of the display signal with the graphic card. If you experience an unstable or flickering image, use **Tracking** to correct it. This is a fine adjustment.

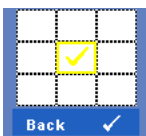
DISPLAY (in Video Mode)


Using the **Display** menu, you can adjust the display settings of your projector. The **Picture** menu provides the following options:




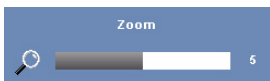
ASPECT RATIO—Allows you to select the aspect ratio to adjust how the image appears.



-  **Original** — Select **Original** to maintain the aspect ratio of image projected according to input source.
-  **4:3** — The input source scales to fit the screen and projects a 4:3 image.
-  **Wide** — The input source scales to fit the width of the screen to project a wide screen image.




ZOOM—Press  to activate **Zoom** menu.





Select the area to zoom and press  to view zoomed image.



Adjust the image scale by pressing  or  and press  to view.

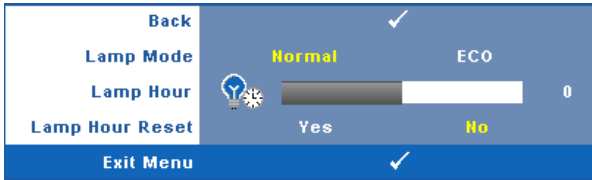


ZOOM NAVIGATION—Press  to activate **Zoom Navigation** menu.

Use     to navigate projection screen.

LAMP

Using the **Lamp** menu, you can adjust the display settings of your projector. The Lamp menu provides the following options:



LAMP MODE—Allows you to select between Normal and ECO mode.

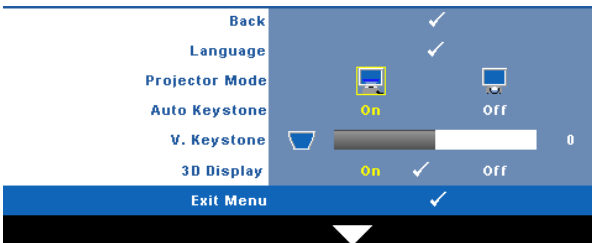
Normal mode operates at full power level. ECO Mode operates at a lower power level which may provide longer lamp life, quieter operation, and dimmer luminance output on the screen.


LAMP HOUR—Displays the operating hours since the last lamp timer reset.

LAMP HOUR RESET—Select **Yes** to reset the lamp timer.

SET UP



The Set Up menu allows you to adjust settings for Language, Projector Mode, Keystone, and 3D Display.



LANGUAGE—Allows you to set the language for the OSD. Press  to activate the Language menu.



PROJECTOR MODE—Allows you to select the projector mode, depending upon how the projector is mounted.

-  Front Projection-Desktop — This is the default option.
-  Rear Projection-Desktop — The projector reverses the image so that you can project from behind a translucent screen.

AUTO KEYSTONE—Select **On** to enable the auto correction for vertical image distortion caused by tilting the projector.

V. KEYSTONE—Manually adjust the vertical image distortion caused by tilting the projector.

3D DISPLAY—Select **On** to start the 3D display function. Default is **Off**.



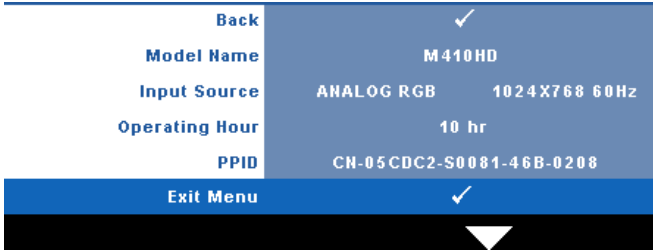
NOTE: To activate 3D Display function, ensure that 3D goggles, 3D video contents and 60Hz/120Hz signal output graphic card supported on PC/NB are ready.



3D Sync Invert—If you see a discrete or overlapping image while wearing DLP 3D goggles, you may need to execute 'Invert' to get best match of left/right image sequence to get the correct image. (For DLP 3D goggles)

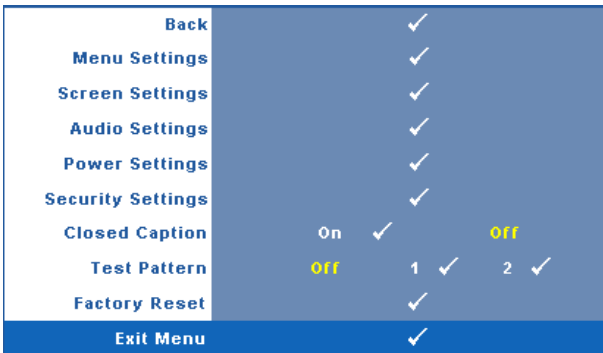
INFORMATION

The Information menu displays the current projector settings.

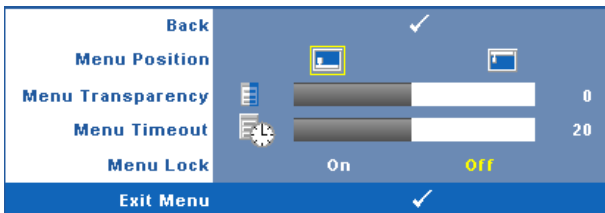


OTHERS

The Others menu allows you to change settings for Menu, Screen, Audio, Power, Security, and Closed Caption (for NTSC only). You can also perform Test Pattern and Factory Reset.



MENU SETTINGS—Select and press to activate menu settings. The menu settings consists of the following options:



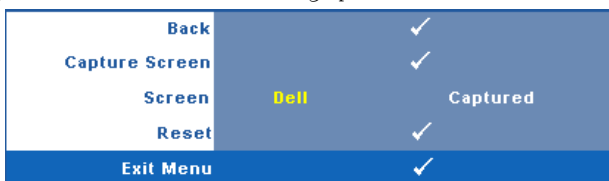
MENU POSITION—Allows you to change the position of the OSD menu on the screen.

MENU TRANSPARENCY—Select to change the transparency level of the OSD background.

MENU TIMEOUT—Allows you to adjust the time for an OSD timeout. By default, the OSD disappears after 20 seconds of non-activity.


MENU LOCK—Select **On** to enable Menu Lock and hide the OSD menu. Select **OFF** to disable the Menu Lock. If you want to disable the Menu Lock function and have the OSD disappear, press the **Menu** button on the control panel or remote control for 15 seconds, then disable the function.

SCREEN SETTINGS—Select and press to activate screen settings. The screen settings menu consists of the following options:



CAPTURE SCREEN—Select and press to capture the screen display, the following message appears on the screen.

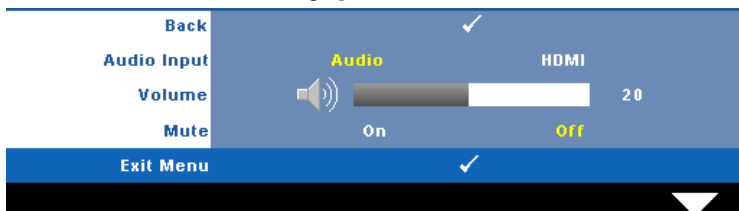


 **NOTE:** To capture a full image, ensure the input signal that is connected to the projector is 1024 x 768 resolution.



SCREEN—Select **Dell** to use the Dell logo as wallpaper. Select **Captured** to set the captured image as wallpaper.

RESET—Select and press to delete the captured picture and set back to the default setting.


AUDIO SETTINGS—Select and press to change audio settings. The audio settings menu consists of the following options:

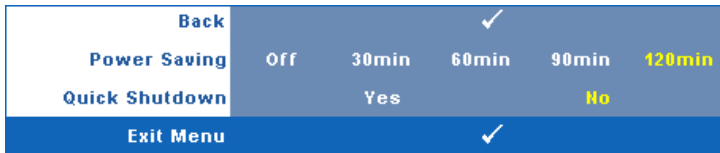


AUDIO INPUT—Select the Audio input source, options are: Audio and HDMI.

VOLUME—Press  to decrease the volume and  to increase the volume.

MUTE—Allows you to mute the sounds for audio input and audio output.

POWER SETTINGS—Select and press  to activate power settings. The power settings menu consists of the following options:



POWER SAVING—Select **Off** to disable Power Saving mode. By default, the projector is set to enter power saving mode after 120 minutes of no activity. A warning message appears on screen showing a 60-second countdown before switching to power saving mode. Press any button during countdown period to stop power saving mode.


You can also set a different delay period to enter power saving mode. The delay period is the time you want the projector to wait without an input signal. Power saving can be set to 30, 60, 90, or 120 minutes.

If an input signal is not detected during the delay period, the projector turns off the lamp and goes into power saving mode. If an input signal is detected within the delay period, the projector automatically turns on. If an input signal is not detected within two hours during power saving mode, the projector switches from Power Saving mode to Power Off mode. To turn on the projector press the Power button.

QUICK SHUTDOWN—Select **Yes** to turn off the projector with a single press of the Power button. This function allows the projector to quick power off with an accelerated fan speed. Slightly higher acoustic noise is expected during quick power off.




NOTE: Before you turn on the projector again, wait for 60 seconds to allow the internal temperature to stabilize. The projector will take a longer time to turn on if you try to power on immediately. Its cooling fan will run at full speed for about 30 seconds to stabilize the internal temperature.

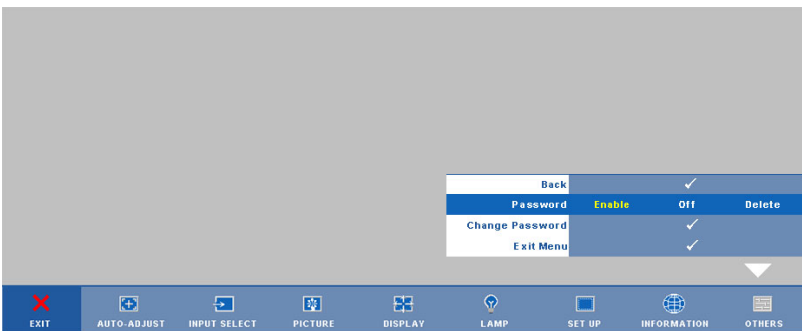
SECURITY SETTINGS—Select and press  to activate security settings. The security settings menu allows you to enable and set password protection.


| | |
|-----------------|-------------------------|
| Back | ✓ |
| Password | Enable Off Delete |
| Change Password | ✓ |
| Exit Menu | ✓ |

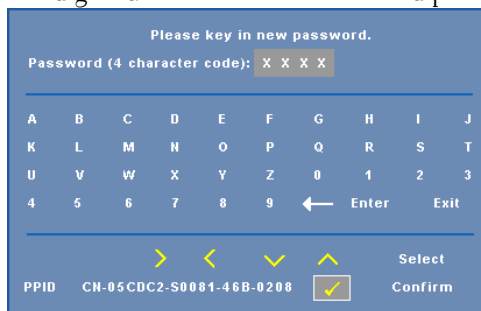
PASSWORD—When Password Protect is enabled, a Password Protect screen requesting you to enter a password will be displayed when the power plug is inserted into the electrical outlet and the power for the projector is first turned on. By default, this function is disabled. You can enable this feature by selecting **Enabled**. If the password has been set before, key in the password first and select the function. This password security feature will be activated the next time you turn on the projector. If you enable this feature, you will be asked to enter the projector's password after you turn on the projector:

1 First time password input request:

- a** Go to **Others** menu, press  and then select **Password** to **Enable** the password setting.




- b Enabling the Password function will pop up a character screen, key in a 4-digit number from the screen and press .




Please key in new password.

Password (4 character code): X X X X

| | | | | | | | | | |
|---|---|---|---|---|---|---|-------|------|---|
| A | B | C | D | E | F | G | H | I | J |
| K | L | M | N | O | P | Q | R | S | T |
| U | V | W | X | Y | Z | 0 | 1 | 2 | 3 |
| 4 | 5 | 6 | 7 | 8 | 9 | ← | Enter | Exit | |

PPID CN-05CDC2-S0081-46B-0208  Confirm

- c To confirm, enter the password again.
- d If the password verification is successful, you may resume with accessing the projector's functions and its utilities.
- 2 If you have entered an incorrect password, you will be given another 2 chances. After the three invalid attempts, the projector will automatically turn off.

 **NOTE:** If you forget your password, contact DELL™ or qualified service personnel.

- 3 To disable the password function, select **Off** to disable the function.
- 4 To delete the password, select **Delete**.

CHANGE PASSWORD—Key in the original password, then enter the new password and confirm the new password again.

Please key in the original password.

Password (4 character code): X X X X

| | | | | | | | | | |
|---|---|---|---|---|---|---|-------|------|---|
| A | B | C | D | E | F | G | H | I | J |
| K | L | M | N | O | P | Q | R | S | T |
| U | V | W | X | Y | Z | 0 | 1 | 2 | 3 |
| 4 | 5 | 6 | 7 | 8 | 9 | ← | Enter | Exit | |

> < ✓ ⬆ Select
 PPID CN-05CDC2-S0081-46B-0208 Confirm

Please key in new password.

Password (4 character code): X X X X

| | | | | | | | | | |
|---|---|---|---|---|---|---|-------|------|---|
| A | B | C | D | E | F | G | H | I | J |
| K | L | M | N | O | P | Q | R | S | T |
| U | V | W | X | Y | Z | 0 | 1 | 2 | 3 |
| 4 | 5 | 6 | 7 | 8 | 9 | ← | Enter | Exit | |

> < ✓ ⬆ Select
 PPID CN-05CDC2-S0081-46B-0208 Confirm

Please key in new password again.


Password (4 character code): X X X X

| | | | | | | | | | |
|---|---|---|---|---|---|---|-------|------|---|
| A | B | C | D | E | F | G | H | I | J |
| K | L | M | N | O | P | Q | R | S | T |
| U | V | W | X | Y | Z | 0 | 1 | 2 | 3 |
| 4 | 5 | 6 | 7 | 8 | 9 | ← | Enter | Exit | |





> < ✓ ⬆ Select
 PPID CN-05CDC2-S0081-46B-0208 Confirm

CLOSED CAPTION—Select **On** to enable close caption and activate the closed caption menu. Select an appropriate closed captions option: CC1, CC2, CC3, and CC4.

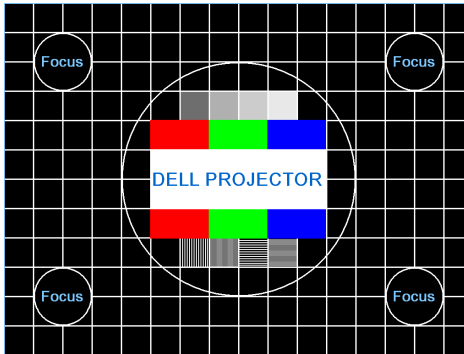
| | | | | |
|------------------|-----|-----|-----|-----|
| Back | | | | ✓ |
| Select | CC1 | CC2 | CC3 | CC4 |
| Exit Menu | | | | ✓ |

 **NOTE:** Closed caption option is available for NTSC only.

TEST PATTERN—Test Pattern is used to test focus and resolution.


You can enable or disable the **Test Pattern** by selecting **Off**, **1** or **2**. You can also invoke the **Test Pattern 1** by pressing and holding down  and  buttons on the control panel simultaneously for 2 seconds. You can also invoke the test pattern 2 by pressing and holding down  and  buttons on the control panel simultaneously for 2 seconds.

Test Pattern 1:



Test Pattern 2:



FACTORY RESET—Select and press  to reset all settings to its factory default, the warning message below appears.



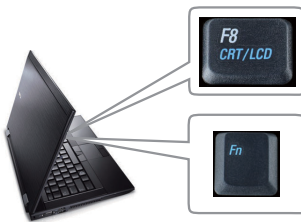
Reset items include both computer sources and video source settings.

Troubleshooting Your Projector



If you experience problems with your projector, see the following troubleshooting tips. If the problem persists, contact Dell™. See *Contacting Dell™* on page 53.

Problem

No image appears on the screen







Possible Solution

- Ensure that the lens cap is removed and the projector is turned on.
- Ensure that you have chosen the correct input source on the INPUT SELECT menu.
- Ensure the external graphics port is enabled. If you are using a Dell™ Laptop computer, press   (Fn+F8). For other computers, see your respective documentation. If images are not displayed properly, please upgrade the video driver of your computer. For Dell computer, see support.dell.com.
- Ensure that all the cables are securely connected. See "Connecting Your Projector" on page 8.
- Ensure that the pins of the connectors are not bent or broken.
- Ensure that the lamp is securely installed (see "Changing the Lamp" on page 47).
- Use **Test Pattern** in the **Others** menu. Ensure that the colors of the test pattern are correct.

Missing Input Source.
Cannot switch to particular
Input Source.

Go to Advanced Enable/Disable Sources, ensure that particular Input Source is set to Enable.

| Problem (continued) | Possible Solution (continued) |
|----------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Partial, scrolling, or incorrectly displayed image | <ol style="list-style-type: none"> 1 Press the Auto Adjust button on the remote control or the control panel. 2 If you are using a Dell™ portable computer, set the resolution of the computer to WXGA (1280 x 800) or XGA (1024 x 768): <ol style="list-style-type: none"> a Right-click the unused portion of your Microsoft® Windows® desktop, click Properties and then select Settings tab. b Verify that the setting is 1280 x 800 or 1024 x 768 pixels for the external monitor port. c Press   (Fn+F8). <p>If you experience difficulty in changing resolutions or your monitor freezes, restart all the equipment and the projector.</p> <p>If you are not using a Dell™ portable computer, see your documentation. If images are not displayed properly, please upgrade the video driver of your computer. For a Dell computer, see support.dell.com.</p> |
| The screen does not display your presentation | If you are using a portable computer, press   (Fn+F8). |
| Image is unstable or flickering | Adjust the tracking in the OSD Display sub-menu (in PC Mode only). |
| Image has vertical flickering bar | Adjust the frequency in the OSD Display sub-menu (in PC Mode only). |
| Image color is incorrect | <ul style="list-style-type: none"> • If the display receives the wrong signal output from the graphics card, please set the signal type to RGB in the OSD Display tab. • Use Test Pattern in the Others menu. Ensure that the colors of the test pattern are correct. |
| Image is out of focus | <ol style="list-style-type: none"> 1 Adjust the focus ring on the projector lens. 2 Ensure that the projection screen is within the required distance from the projector (3.28 ft [1 m] to 39.37 ft [12 m]). |

| Problem (continued) | Possible Solution (continued) |
|---------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| The image is stretched when displaying a 16:9 DVD | <p>The projector automatically detects the input signal format. It will maintain the aspect ratio of the projected image according to input signal format with an Original setting.</p> <p>If the image is still stretched, adjust the aspect ratio in the Set Up menu in the OSD.</p> |
| Image is reversed | Select Set Up from the OSD and adjust the projector mode. |
| Lamp is burned out or makes a popping sound | When the lamp reaches its end of life, it may burn out and may make a loud popping sound. If this occurs, the projector does not turn back on. To replace the lamp, see "Changing the Lamp" on page 47. |
| LAMP light is solid amber | If the LAMP light is solid amber, replace the lamp. |
| LAMP light is blinking amber | <p>If the LAMP light is blinking amber, Lamp module connection may be disrupted. Please check the lamp module and ensure that it is properly installed.</p> <p>If the LAMP light and the Power light are blinking amber, the lamp driver has failed and the projector will automatically shut down.</p> <p>If the LAMP and TEMP light are blinking amber and the Power light is solid blue, the color wheel has failed and the projector will automatically shut down.</p> <p>To clear the protection mode, press and hold the POWER button for 10 seconds.</p> |
| TEMP light is solid amber | The projector has overheated. The display automatically shuts down. Turn the display on again after the projector cools down. If the problem persists, contact Dell™. |

| Problem (continued) | Possible Solution (continued) |
|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| TEMP light is blinking amber | A projector fan has failed and the projector will automatically shut down. Try to clear the projector mode by pressing and holding the POWER button for 10 seconds. Please wait for about 5 minutes and try to power up again. If the problem persists, contact Dell™. |
| The OSD does not appear on the screen | Try to press the Menu button on the panel for 15 seconds to unlock the OSD. Check the Menu Lock on page 35. |
| The remote control is not operating smoothly or works only within a limited range | The battery may be low. Check if the laser beam transmitted from the remote is too dim. If so, replace with 2 new AAA batteries. |

Guiding Signals

| Projector Status | Description | Control Buttons | | | Indicator | |
|----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|------|--------|----------------|----------------|
| | | Power | Menu | Others | TEMP (Amber) | LAMP (Amber) |
| Standby mode | Projector in Standby mode. Ready to power on. | BLUE Flashing | OFF | OFF | OFF | OFF |
| Warming up mode | Projector takes some time to warm up and power on. | BLUE | BLUE | BLUE | OFF | OFF |
| Lamp on | Projector in Normal mode, ready to display an image. Note: The OSD menu is not accessed. | BLUE | BLUE | OFF | OFF | OFF |
| Cooling mode | Projector is cooling to shutdown. | BLUE | OFF | OFF | OFF | OFF |
| Power Saving mode | Power Saving mode has been activated. The projector will automatically enter standby mode, if an input signal is not detected in two hours. | AMBER Flashing | OFF | OFF | OFF | OFF |
| Cooling before Power Saving mode | The projector takes 60 seconds to cool down before entering Power Saving mode. | AMBER | OFF | OFF | OFF | OFF |
| Projector overheated | Air vents might be blocked or ambient temperature may be above 35°C. The projector automatically shuts down. Ensure that the air vents are not blocked and that the ambient temperature is within operational range. If the problem persists, contact Dell. | OFF | OFF | OFF | AMBER | OFF |
| Lamp overheated | The lamp is overheated. The air vents may be blocked. The projector automatically shuts down. Turn the display on again after the projector cools down. If the problem persists, contact Dell. | BLUE | OFF | OFF | AMBER | OFF |
| Lamp driver overheated | The lamp driver is overheated. The air vents may be blocked. The projector automatically shuts down. Turn the display on again after the projector cools down. If the problem persists, contact Dell. | AMBER | OFF | OFF | AMBER | OFF |
| Fan breakdown | One of the fans has failed. The projector automatically shuts down. If the problem persists, contact Dell. | OFF | OFF | OFF | AMBER Flashing | OFF |
| Lamp driver breakdown | The lamp driver has failed. The projector automatically shuts down. Unplug the power cord after three minutes then turn the display on again. If this problem persists, contact Dell. | AMBER Flashing | OFF | OFF | OFF | AMBER Flashing |
| Color Wheel breakdown | Color wheel cannot start. The projector has failed and the projector automatically shuts down. Unplug the power cord after three minutes and then turn on the projector. If this problem persists, contact Dell. | BLUE | OFF | OFF | AMBER Flashing | AMBER Flashing |

| | | | | | | |
|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|-----|-----|----------------|
| Lamp failure | Lamp is defective. Replace the lamp. | OFF | OFF | OFF | OFF | AMBER |
| Lamp module connection failed | Lamp module connection may be disrupted. Check the lamp module and ensure that it is properly installed. If the problem persists, contact Dell. | OFF | OFF | OFF | OFF | AMBER Flashing |

Changing the Lamp

⚠ CAUTION: Before you begin any of the procedures in this section, follow the Safety Instructions as described on page 6.

Replace the lamp when the message "**Lamp is approaching the end of its useful life in the operation. Replacement suggested!** www.dell.com/lamps" appears on the screen. If this problem persists after replacing the lamp, contact Dell™. For more information, see Contacting Dell™ on page 53.

⚠ CAUTION: Use an original lamp to ensure safe and optimal working condition of your projector.

⚠ CAUTION: The lamp becomes very hot when in use. Do not attempt to replace the lamp until the projector has been allowed to cool down for at least 30 minutes.

⚠ CAUTION: Do not touch the bulb or the lamp glass at any time. Projector lamps are very fragile and may shatter if touched. The shattered glass pieces are sharp and can cause injury.

⚠ CAUTION: If the lamp shatters, remove all broken pieces from the projector and dispose or recycle according to state, local, or federal law. For more information see www.dell.com/hg.

- 1 Turn off the projector and disconnect the power cord.
- 2 Let the projector cool for at least 30 minutes.
- 3 Loosen the two screws that secure the lamp cover, and remove the cover.
- 4 Loosen the two screws that secure the lamp.
- 5 Pull the lamp up by its metal handle.

✍ NOTE: Dell™ may require lamps replaced under warranty to be returned to Dell™. Otherwise, contact your local waste disposal agency for the address of the nearest deposit site.


- 6 Replace with the new lamp.
- 7 Tighten the two screws that secure the lamp.
- 8 Replace the lamp cover and tighten the two screws.



9 Reset the lamp usage time by selecting "Yes" for **Lamp Reset** in the **OSD Lamp** tab (see **Lamp** menu on page 32). When a new lamp module has been changed, the projector will automatically detect and reset the lamp hours.



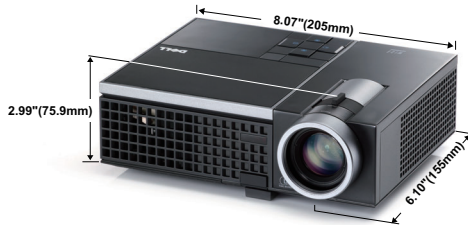
CAUTION: Lamp Disposal (for the US only)

 **LAMP(S) INSIDE THIS PRODUCT CONTAIN MERCURY AND MUST BE RECYCLED OR DISPOSED OF ACCORDING TO LOCAL, STATE OR FEDERAL LAWS. FOR MORE INFORMATION, GO TO WWW.DELL.COM/HG OR CONTACT THE ELECTRONIC INDUSTRIES ALLIANCE AT WWW.EIAE.ORG. FOR LAMP SPECIFIC DISPOSAL INFORMATION CHECK WWW.LAMPRECYCLE.ORG.**

Specifications

| | |
|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Light Valve | 0.65" WXGA S450 DMD, DarkChip3™ |
| Brightness | 2000 ANSI Lumens (Max.) |
| Contrast Ratio | 2100:1 Typical (Full On/Full Off) |
| Uniformity | 85% Typical (Japan Standard - JBMA) |
| Number of Pixels | 1280 x 800 (WXGA) |
| Displayable Color | 1.07 billion colors |
| Color Wheel Speed | 2X |
| Projection Lens | F-Stop: F/2.5~2.67 Focal length, f=21.86~24 mm 1.1X manual Zoom Lens Throw ratio =1.55~1.7 wide and tele |
| Projection Screen Size | 27.2-361 inches (diagonal) |
| Projection Distance | 3.28~39.37 ft (1 m ~ 12 m) |
| Video Compatibility | Composite Video / S-Video: NTSC (J, M, 4.43), PAL (B, D, G, H, I, M, N, Nc, 60), SECAM (B, D, G, K, K1, L) Component Video via VGA & HDMI: 1080i/p, 720p, 576i/p, 480i/p |
| Power Supply | Universal AC 100-240 50-60 Hz with PFC input |
| Power Consumption | Normal mode: 210W ± 10% @ 110Vac Eco mode: 166W ± 10% @ 110Vac Power saving mode: <12W Standby mode: < 1W |
| Audio | 1 speaker x 1 watt RMS |
| Noise Level | 39 dB(A) Normal mode, 32 dB(A) Eco mode |
| Weight | 2.6 lbs (1.18 kg) |

Dimensions (W x H x D) 8.07 x 2.99 x 6.10 inches (205 x 75.9 x 155 mm)



| | |
|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Environmental | <p>Operating temperature: 5°C - 35°C (41°F- 95°F) Humidity: 80% maximum</p> <p>Storage temperature: 0°C to 60°C (32°F to 140°F) Humidity: 90% maximum</p> <p>Shipping temperature: -20°C to 60°C (-4°F to 140°F) Humidity: 90% maximum</p> |
| I/O Connectors | <p>Power: One AC power socket (3-pin - C14 inlet)</p> <p>VGA input: One 15-pin D-sub connector (Blue), for analog RGB/Component input signals.</p> <p>S-Video input: One standard 4-pin min-DIN S-Video connector for Y/C signal.</p> <p>Composite video input: One Yellow RCA jack for CVBS signal.</p> <p>HDMI input: One HDMI connector for supporting HDMI 1.3. HDCP compliant.</p> <p>Analog Audio input: One 3.5 mm stereo mini phone jack (Blue).</p> <p>Variable audio output: One 3.5 mm stereo mini phone jack (Green).</p> <p>USB port: One USB slave for remote support.</p> |
| Lamp | <p>OSRAM 165 W user-replaceable lamp (up to 5000 hours in eco mode)</p> |



NOTE: The lamp life rating for any projector is a measure of brightness degradation only, and is not a specification for the time it takes a lamp to fail and cease light output. Lamp life is defined as the time it takes for more than 50 percent of a lamp sample population to have brightness decrease by approximately 50 percent of the rated lumens for the specified lamp. The lamp life rating is not guaranteed in any way. The actual operating life span of a projector lamp will vary according to operating conditions and usage patterns. Usage of a projector in stressful conditions which may include dusty environments, under high temperatures, many hours per day and abrupt powering-off will most likely result in a lamp's shortened operating life span or possible lamp failure.

Compatibility Modes (Analog/Digital)

| Resolution | Refresh Rate (Hz) | Hsync Frequency (KHz) | Pixel Clock (MHz) |
|-----------------|-------------------|-----------------------|-------------------|
| 640 x 350 | 70.087 | 31.469 | 25.175 |
| 640 x 480 | 59.940 | 31.469 | 25.175 |
| 640 x 480 p60 | 59.940 | 31.469 | 25.175 |
| 720 x 480 p60 | 59.940 | 31.469 | 27.000 |
| 720 x 576 p50 | 50.000 | 31.250 | 27.000 |
| 720 x 400 | 70.087 | 31.469 | 28.322 |
| 640 x 480 | 75.000 | 37.500 | 31.500 |
| 848 x 480 | 60.000 | 31.020 | 33.750 |
| 640 x 480 | 85.008 | 43.269 | 36.000 |
| 800 x 600 | 60.317 | 37.879 | 40.000 |
| 800 x 600 | 75.000 | 46.875 | 49.500 |
| 800 x 600 | 85.061 | 53.674 | 56.250 |
| 1024 x 768 | 60.004 | 48.363 | 65.000 |
| 1280 x 720 p50 | 50.000 | 37.500 | 74.250 |
| 1280 x 720 p60 | 60.000 | 45.000 | 74.250 |
| 1920 x 1080 i50 | 50.000 | 28.125 | 74.250 |
| 1920 x 1080 i60 | 60.000 | 33.750 | 74.250 |
| 1280 x 720 | 59.855 | 44.772 | 74.500 |
| 1024 x 768 | 75.029 | 60.023 | 78.750 |
| 1280 x 800 | 59.810 | 49.702 | 83.500 |
| 1366 x 768 | 59.790 | 47.712 | 85.500 |
| 1360 x 768 | 60.015 | 47.712 | 85.500 |
| 1024 x 768 | 84.997 | 68.677 | 94.500 |
| 1440 x 900 | 59.887 | 55.935 | 106.500 |
| 1152 x 864 | 75.000 | 67.500 | 108.000 |
| 1280 x 960 | 60.000 | 60.000 | 108.000 |
| 1280 x 1024 | 60.020 | 63.981 | 108.000 |
| 1152 x 864 | 85.000 | 77.095 | 119.651 |
| 1400 x 1050 | 59.978 | 65.317 | 121.750 |
| 1280 x 800 | 84.880 | 71.554 | 122.500 |
| 1280 x 1024 | 75.025 | 79.976 | 135.000 |
| 1440 x 900 | 74.984 | 70.635 | 136.750 |
| 1680 x 1050 | 59.954 | 65.290 | 146.250 |
| 1280 x 960 | 85.002 | 85.938 | 148.500 |
| 1920 x 1080 | 60.000 | 67.500 | 148.500 |
| 1400 x 1050 | 74.867 | 82.278 | 156.000 |
| 1280 x 1024 | 85.024 | 91.146 | 157.000 |
| 1440 x 900 | 84.842 | 80.430 | 157.000 |
| 1600 x 1200 | 60.000 | 75.000 | 162.000 |

Contacting Dell

For customers in the United States, call 800-WWW-DELL (800-999-3355).



NOTE: If you do not have an active Internet connection, you can find contact information on your purchase invoice, packing slip, bill, or Dell product catalog.

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- 3 Click **Contact Us** on the left side of the page.
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Appendix: Glossary

ANSI LUMENS — A standard for measuring the brightness. It is calculated by dividing a square meter image into nine equal rectangles, measuring the lux (or brightness) reading at the center of each rectangle, and averaging these nine points.

ASPECT RATIO — The most popular aspect ratio is 4:3 (4 by 3). Early television and computer video formats are in a 4:3 aspect ratio, which means that the width of the image is $\frac{4}{3}$ times the height.

Brightness — The amount of light emitting from a display or projection display or projection device. The brightness of projector is measured by ANSI lumens.

Color Temperature — The color appearance of white light. Low color temperature implies warmer (more yellow/red) light while high color temperature implies a colder (more blue) light. The standard unit for color temperature is Kelvin (K).

Component Video — A method of delivering quality video in a format that consists of the luminance signal and two separate chrominance signals and are defined as Y'Pb'Pr' for analog component and Y'Cb'Cr' for digital component. Component video is available on DVD players.

Composite Video — A video signal that combines the luma (brightness), chroma (color), burst (color reference), and sync (horizontal and vertical synchronizing signals) into a signal waveform carried on a single wire pair. There are three kinds of formats, namely, NTSC, PAL, and SECAM.

Compressed Resolution — If the input images are of higher resolution than the native resolution of the projector, the resulting image will be scaled to fit the native resolution of the projector. The nature of compression in a digital device means that some image content is lost.

Contrast Ratio — Range of light and dark values in a picture, or the ratio between their maximum and minimum values. There are two methods used by the projection industry to measure the ratio:

- 1 *Full On/Off* — measures the ratio of the light output of an all white image (full on) and the light output of an all black (full off) image.
- 2 *ANSI* — measures a pattern of 16 alternating black and white rectangles. The average light output from the white rectangles is divided by the average light output of the black rectangles to determine the ANSI contrast ratio.

Full On/Off contrast is always a larger number than ANSI contrast for the same projector.

dB — decibel — A unit used to express relative difference in power or intensity, usually between two acoustic or electric signals, equal to ten times the common logarithm of the ratio of the two levels.

Diagonal Screen — A method of measuring the size of a screen or a projected image. It measures from one corner to the opposite corner. A 9 ft high, 12 ft wide, screen has a diagonal of 15 ft. This document assumes that the diagonal dimensions are for the traditional 4:3 ratio of a computer image as per the example above.

DLP® — Digital Light Processing™ — Reflective display technology developed by Texas Instruments, using small manipulated mirrors. Light passing through a color filter is sent to the DLP mirrors which arrange the RGB colors into a picture projected onto screen, also known as DMD.

DMD — Digital Micro-Mirror Device — Each DMD consists of thousands of tilting, microscopic aluminum alloy mirrors mounted on a hidden yoke.

Focal Length — The distance from the surface of a lens to its focal point.

Frequency — It is the rate of repetition in cycles per seconds of electrical signals. Measured in Hz (Hertz).

HDCP — High-Bandwidth Digital-Content Protection — A specification developed by Intel™ Corporation to protect digital entertainment across digital interface, such as DVI and HDMI.

HDMI — High-Definition Multimedia Interface — HDMI carries both uncompressed high definition video along with digital audio and device control data in a single connector.

Hz (Hertz) — Unit of frequency.

Keystone Correction — Device that will correct an image of the distortion (usually a wide-top narrow-bottom effect) of a projected image caused by improper projector to screen angle.

Maximum Distance — The distance from a screen the projector can be to cast an image that is usable (bright enough) in a fully darkened room.

Maximum Image Size — The largest image a projector can throw in a darkened room. This is usually limited by focal range of the optics.

Minimum Distance — The closest position that a projector can focus an image onto a screen.

NTSC — National Television Standards Committee. North American standard for video and broadcasting, with a video format of 525 lines at 30 frames per second.

PAL — Phase Alternating Line. A European broadcast standard for video and broadcasting, with a video format of 625 lines at 25 frames per second.

Reverse Image — Feature that allows you to flip the image horizontally. When used in a normal forward projection environment text, graphics, etc. are backwards. Reverse image is used for rear projection.

RGB — Red, Green, Blue — typically used to describe a monitor that requires separate signals for each of the three colors.

S-Video — A video transmission standard that uses a 4-pin mini-DIN connector to send video information on two signal wires called luminance (brightness, Y) and chrominance (color, C). S-Video is also referred to as Y/C.

SECAM — A French and international broadcast standard for video and broadcasting, closely related to PAL but with a different method of sending color information.

SVGA — Super Video Graphics Array — 800 x 600 pixels count.

SXGA — Super Extended Graphics Array, — 1280 x 1024 pixels count.

UXGA — Ultra Extended Graphics Array — 1600 x 1200 pixels count.

VGA — Video Graphics Array — 640 x 480 pixels count.

XGA — Extended Video Graphics Array — 1024 x 768 pixels count.

WXGA — Wide Extended Graphics Array — 1280 x 800 pixels count.

Zoom Lens — Lens with a variable focal length that allows operator to move the view in or out making the image smaller or larger.

Zoom Lens Ratio — Is the ratio between the smallest and largest image a lens can project from a fixed distance. For example, a 1.4:1 zoom lens ratio means that a 10 foot image without zoom would be a 14 foot image with full zoom.

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