



HP x2301 LCD Monitor

User Guide

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About This Guide

This guide provides information on setting up the monitor, installing drivers, using the on-screen display menu, troubleshooting and technical specifications.

 **WARNING!** Text set off in this manner indicates that failure to follow directions could result in bodily harm or loss of life.

 **CAUTION:** Text set off in this manner indicates that failure to follow directions could result in damage to equipment or loss of information.

 **NOTE:** Text set off in this manner provides important supplemental information.

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1 Product Features

HP x2301 LCD Monitor

Figure 1-1 HP x2301 LCD Monitor



The HP x2301 LCD Monitor has an active matrix, thin-film transistor (TFT) screen with an LED backlight and the following features:

- Large diagonal display
- Maximum graphics resolution of 1920 x 1080 at 60Hz, plus full-screen support for lower resolutions
- VGA analog input signal with cable provided
- DVI digital input signal with single-link DVI-D to DVI-D cable provided
- High-definition multimedia interface (HDMI) signal input
- Fast response time, providing better experience for hardcore gaming and graphics
- Easy viewing from a sitting or standing position, or while moving from one side of the monitor to the other
- Dynamic Contrast Ratio to provide deeper blacks and brighter whites for brilliant shading effects while gaming or watching movies
- Tilt adjustment
- Plug and Play capability, if supported by your computer system
- On-screen display (OSD) adjustments for easy setup and screen optimization (available in English, Simplified Chinese, French, German, Italian, Spanish, Dutch, Japanese, and Portuguese)

- Power Saver to reduce energy consumption
- Quick View settings display
- HDCP (High Bandwidth Digital Content Protection) on DVI and HDMI inputs
- Software and utilities CD containing drivers and documents

2 Safety and Maintenance Guidelines

Important Safety Information

For displays with glossy bezels, consider the placement of the display, because the bezel might cause distracting reflections from surrounding light and bright surfaces.

For information on the correct power cord set to use with the monitor, see [Power Cord Set Requirements on page 25](#).

⚠ WARNING! To reduce the risk of electric shock or damage to the equipment:

- Do not disable the power cord grounding feature. The grounding plug is an important safety feature.
- Plug the power cord in a grounded (earthed) outlet that is easily accessible at all times.
- Disconnect power from the product by unplugging the power cord from the electrical outlet.

For your safety, do not place anything on power cords or cables. Arrange them so that no one might accidentally step on or trip over them. Do not pull on a cord or cable. When unplugging from the electrical outlet, grasp the cord by the plug.

To reduce the risk of serious injury, see the HP Safety and Comfort Guide on the HP website at <http://www.hp.com/ergo> or on the documentation CD. The guide describes proper workstation, setup, posture, and health and work habits for computer users, and provides important electrical and mechanical safety information.

⚠ CAUTION: For the protection of the monitor, as well as the computer, connect all power cords for the computer and its peripheral devices (such as a monitor, printer, scanner) to some form of surge protection device such as a power strip or Uninterruptible Power Supply (UPS). Not all power strips provide surge protection; the power strips must be specifically labeled as having this ability. Use a power strip whose manufacturer offers a Damage Replacement Policy so you can replace the equipment, if surge protection fails.

Use the appropriate and correctly sized furniture designed to properly support your HP LCD monitor.

⚠ WARNING! LCD monitors that are inappropriately situated on dressers, bookcases, shelves, desks, speakers, chests, or carts might fall over and cause personal injury. Care must be taken to route all cords and cables connected to the LCD monitor so that they cannot be pulled, grabbed, or tripped over.

Safety Precautions

- Use only a power source and connection compatible with this monitor, as indicated on the label of the power adapter.
- Be sure the total ampere rating of the products connected to the outlet does not exceed the current rating of the electrical outlet, and the total ampere rating of the products connected to the power cord does not exceed the rating of the power cord. To determine the ampere rating (Amps or A) for each device, see the power label.

- Install your monitor near a power outlet that you can easily reach.
- Disconnect the monitor by grasping the plug firmly and pulling it from the outlet.
- Never disconnect the monitor by pulling the cord.
- Do not allow anything to rest on the power cord.
- Do not walk on the cord.

Maintenance Guidelines

To enhance the performance and extend the life of the monitor:

- Do not open the monitor cabinet or attempt to service this product yourself. Adjust only those controls that are covered in the operating instructions.
- If the monitor is not operating properly or has been dropped or damaged, contact an authorized HP dealer, reseller, or service provider.
- Turn the monitor off when not in use. You can substantially increase the life expectancy of the monitor by using a screen saver program and turning off the monitor when not in use.



NOTE: Monitors with a “burned-in image” are not covered under the HP warranty.

- Slots and openings in the cabinet are provided for ventilation. These openings must not be blocked or covered. Never push objects of any kind into cabinet slots or other openings.
- Do not drop the monitor or place it on an unstable surface.
- Keep the monitor in a well-ventilated area, away from excessive light, heat or moisture.

Cleaning the Monitor

1. Turn off the monitor and unplug the power cord from the back of the unit.
2. Dust the monitor by wiping the screen and the cabinet with a soft, clean antistatic cloth.
3. For more difficult cleaning situations, use a 50/50 mix of water and Isopropyl alcohol. Spray the cleaner onto a cloth and use the damp cloth to gently wipe the screen surface.



CAUTION: Do not spray the cleaner directly on the screen surface. The cleaner might run behind the bezel and damage the electronics.

CAUTION: Do not use cleaners that contain any petroleum based materials such as benzene, thinner, or any volatile substance to clean the monitor screen or cabinet. These chemicals might damage the monitor.

Shipping the Monitor

Keep the original packing box in a storage area. You might need it later if you move or ship the monitor.


To prepare the monitor for shipping:

1. Disconnect the power and video cables from the monitor.
2. Place the monitor in the original packing box.


3 Setting Up the Monitor

Unpacking the Monitor

1. Make sure all contents are included. Store the packing box.
2. Turn off the computer and other attached devices.
3. Prepare a flat area to assemble the monitor.

 **NOTE:** Use only the power cord and adapter provided with this monitor.

Connecting Monitor Cables

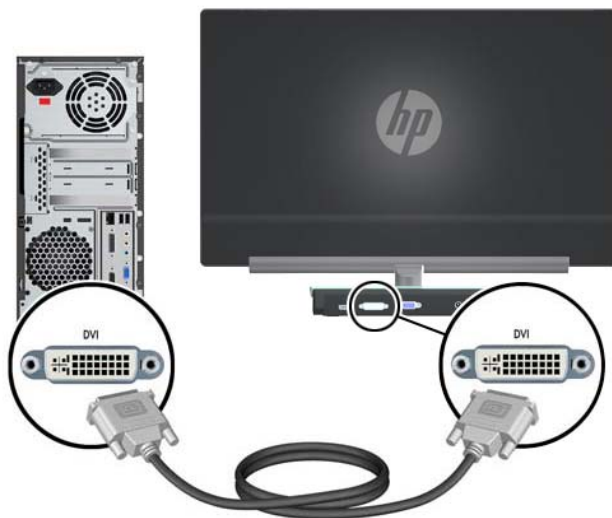
 **CAUTION:** Before connecting cables to the monitor, ensure that the computer and monitor are powered off.

The video source is determined by the video cable used. The monitor automatically determines which inputs have valid video signals. The inputs can be selected by pressing the source button on the front of the monitor.

Connecting the DVI-D Cable

Connect one end of the DVI-D video cable to the back of the monitor and the other end to the DVI-D video connector on the computer. You can use this cable only if your computer has a DVI-compliant graphics card that is either integrated or installed. The DVI-D cable is provided.

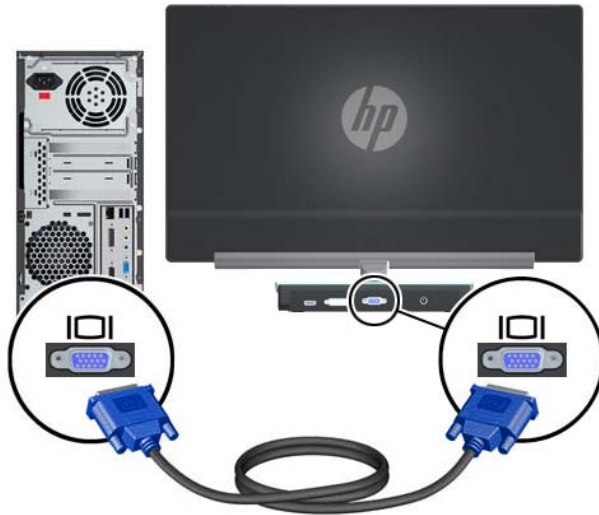
Figure 3-1 Connecting the DVI-D Cable



Connecting the VGA Cable

Connect one end of the VGA cable to the back of the monitor and the other end of the cable to the input device. A VGA cable is provided.

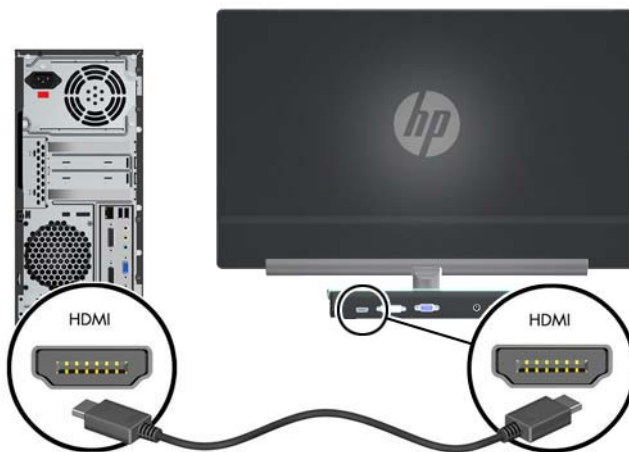
Figure 3-2 Connecting the VGA cable



Connecting the HDMI Cable (select models)

Connect one end of the HDMI cable to the back of the monitor and the other end of the cable to the input device. An HDMI cable is provided with select models only.

Figure 3-3 Connecting the HDMI Cable (only provided on select models)



Connecting the Power Cord

1. Follow all electrical and power warnings.

⚠ WARNING! To reduce the risk of electric shock or damage to your equipment:

Do not disable the power cord grounding plug. The grounding plug is an important safety feature. Plug the power cord into a grounded (earthed) electrical outlet.

Be sure that the grounded power outlet you plug the power cord into is easily accessible to the operator and located as close to the equipment as possible. A power cord must be routed so that it is not likely to be walked on or pinched by items that are placed upon it or against it.

Do not place anything on power cords or cables. Arrange them so that no one might accidentally step on or trip over them. Do not pull on a cord or cable.

For additional information, see [Technical Specifications on page 21](#).

2. Connect the round end of the power cord to the monitor, and then connect one end of the power cord to the power supply and the other end to a grounded electrical outlet.

⚠ WARNING! To prevent injury from electrical shock, you must do one of the following if a properly grounded electrical outlet is not available:

Use an electrical outlet adapter that provides proper grounding.

Have a properly grounded electrical outlet installed.

Use only the following power supply for this monitor model:

Manufacturer: Delta Electronics, Inc., model ADP-40DD B, or

Manufacturer: Lite-On Technology Corporation, model PA-1041-0

Figure 3-4 Connecting the Power Cord



High-Bandwidth Digital Content Protection (HDCP)

Your monitor supports HDCP and can receive high-definition content. High-definition content is available in many sources, such as Blu-ray Disc devices or HDTV air or cable broadcasts. If you do not have an HDCP-enabled monitor, a blank screen or a lower resolution picture appears when playing high-definition protected content. Your computer graphics card and monitor must both support HDCP to display protected content.

Turning on the Monitor

1. Press the power button on the computer.
2. Press the power button on the monitor.

⚠ CAUTION: Burn-in image damage might occur on monitors that display the same static image on screen for a prolonged period of time (at least 12 consecutive hours of non-use). To avoid burn-in image damage on the monitor screen, activate a screen saver application or turn off the monitor when it is not in use for a prolonged period of time. Image retention is a condition that might occur on all LCD screens. Monitors with a burned-in image are not covered under HP warranty.

When the monitor is powered on, a Monitor Status message appears for 5 seconds. The message shows which input is the current active signal, the status of the auto-switch source setting (On or Off), the default source signal, the current preset display resolution, and the recommended preset display resolution.

Selecting Video Input Connectors

The input connectors are:

- VGA (analog)
- DVI-D connector (digital)
- HDMI connector (digital)

The monitor automatically scans the signal inputs for an active input and uses that input for the display. If two inputs are active, the monitor will display the default input source. If the default source is not an active input, then the monitor displays the other input if it is active. You can change the default source in the OSD by pressing the Menu button and selecting Source Control > Default Source.

Adjusting the Tilt

For optimal viewing, adjust the screen tilt to your own preference, as follows:

1. Face the front of the monitor and hold the base so that you do not topple the monitor while changing the tilt.

2. Adjust the tilt by moving the top edge of the monitor either toward or away from you, without touching the screen.

Figure 3-5 Tilt Adjustment



4 Operating the Monitor

CD Software and Utilities


The CD that is included with this monitor contains drivers and software that you can install on your computer.

Installing Drivers

If you determine that you have to update the drivers, you can install the monitor driver INF and ICM files from the CD or download them from the HP website.

Installing the monitor driver software from the CD

1. Insert the CD in your computer CD drive. The CD menu appears.
2. Select the language.
3. Click **Install Monitor Driver Software**.
4. Follow the on-screen instructions.
5. Ensure that the proper resolutions and refresh rates appear in the Display Control Panel settings. For more information, see the Windows® operating system documentation







 **NOTE:** You might have to install the digitally signed monitor drivers (INF or ICM files) manually from the CD, in case of an installation error. See the "Driver Software Readme" file on the CD for instructions (in English only).

Downloading updated drivers from the Internet

1. Go to the HP Technical Support website at <http://www.hp.com/support>.
2. Select your country/region.
3. Select **Download Drivers and Software**.
4. Enter the model number of your monitor. The software download pages for your monitor appear.
5. Download and install the driver and software files by following the instructions on the download pages.
6. Ensure that your system meets the requirements.

Control Buttons


Control buttons are located on the base of the monitor.

Button	Icon	Description
Source		Chooses the video input source from the computer.
Quick View		Opens the OSD Quick View menu where you can select a viewing mode.
Auto Adjust		Press to activate the auto adjustment feature to optimize the screen image.
OK		Enters the selected option in the OSD.
Menu		Opens, selects, or exits the OSD menu. NOTE: Pressing the Menu button for 10 seconds will disable operation of the remaining OSD buttons. Pressing it again for 10 seconds will re-enable functionality.
Power		Turns the monitor on or puts it in standby or sleep mode. The Power button is located on the bottom-right of the monitor. NOTE: Pressing the Power button for 10 seconds will disable operation of the Power button. Pressing it again for 10 seconds will re-enable functionality.


Using the On-Screen Display (OSD)

Use the On-Screen Display (OSD) to adjust the screen image based on your viewing preferences. To access the OSD:

1. Make sure the monitor is on.
2. To access the OSD menu, press the Menu button. The OSD Main Menu appears.
3. To navigate through the Main or sub-menu, press the + (Plus) button to scroll up, or the – (Minus) button to scroll in reverse. Then press the OK button to select the highlighted function.

 **NOTE:** The menu moves to the top if you scroll down at the bottom of the selections. The menu moves to the bottom if you scroll up at the top of the selections.




4. To adjust the scale of a selected item, press the + or – button.
5. Select **Save and Return**. If you don't want to save the setting, select **Cancel** from the sub-menu or **Exit** from the Main Menu.
6. Press the Menu button to exit the OSD.











 **NOTE:** When a menu appears, if the buttons are untouched for 30 seconds (factory default), adjustments and settings are saved and the menu closes.

OSD Menu Selections







The following table lists the on-screen display (OSD) menu selections and their functional descriptions. After changing an OSD menu item, and if the menu screen has these options, you might choose to:




- **Cancel** — To return to the previous menu level.
- **Save and Return** — To save all changes and return to the OSD Main Menu screen. This option is active only if you change a menu item.
- **Reset** — To change back to the previous setting.

Icon	Main Menu Options	Sub-menu Options	Description
	Brightness		Adjusts the brightness level of the screen.
	Contrast		Adjusts the contrast level of the screen.
	Color		Selects the screen color. The factory default is 5000 K.
		Warm (5000 K)	Changes to slightly reddish white.
		Cool (9300 K)	Changes to slightly bluish white.
		Standard (6500 K)	Sets your screen colors to adapt to the color standards used in the image technology industry.

Icon	Main Menu Options	Sub-menu Options	Description
		Quick View	Select from the following modes: Movie Photo Gaming Text Custom (settings saved when you adjust the Brightness, Contrast, or Color in one of the other Quick View options)
		Custom Color	Selects and adjusts your own color scales: R — Sets your own red color levels. G — Sets your own green color levels. B — Sets your own blue color levels.
	Image Control		Adjusts the screen image. Also enables or disables the ambient light sensor.
		Overdrive	Turns Overdrive on or off. The factory default is off.
		Auto Adjustment	Automatically adjusts the screen image
		Clock	Minimizes any vertical bars or strips visible on the screen background. Adjusting the Clock will also change the horizontal screen image.
		Clock Phase	Adjusts the focus of the display. This adjustment allows you to remove any horizontal noise and clear or sharpen the image of the characters.
		Horizontal Position	Adjusts the position of the screen image left and right.
		Vertical Position	Adjusts the position of the screen image up and down.
		Custom Scaling	Selects the method on how displayed information on the monitor will be formatted. Select: <ul style="list-style-type: none"> • Fill to Screen—image fills the entire screen and might look distorted or elongated because of nonproportional scaling of height and width. • Fill to Aspect Ratio—image is sized to fit the screen and maintains proportional image.

Icon	Main Menu Options	Sub-menu Options	Description
		Sharpness	Adjusts the screen image to look sharper or soft.
		Dynamic Contrast Ratio	Sets the Dynamic Contrast Ratio (DCR) setting on or off. The factory default setting is off. DCR automatically adjusts the balance between white and black levels to provide you with an optimal image.
	OSD Control		Adjusts the position of the OSD menu on the screen.
		Horizontal OSD Position	Changes the viewing position of the OSD menu to the left or right area of the screen. The factory default range is 94.
		Vertical OSD Position	Changes the viewing position of the OSD menu to the top or bottom area of the screen. The factory default range is 17.
		OSD Transparency	Adjust to view the background information through the OSD.
		OSD Timeout	Sets the time in seconds that the OSD is visible after the last button is pressed. The factory default is 30 seconds.
	Management		Selects the power-management features of the monitor.
		Power Saver	Enables the power saving feature (see Power-Saver Feature on page 18). Select: On Off The factory default is On.
		Power-On Recall	Restores power to the monitor following an unexpected removal of power. Select: On Off The factory default is On.
		Mode Display	Displays the resolution, refresh rate, and frequency information on the screen each time the OSD Main Menu is accessed. Select: On Off The factory default is On.

Icon	Main Menu Options	Sub-menu Options	Description
		Monitor Status	<p>Displays the operating status of the monitor each time the monitor is powered on. Select the location at which to display the status:</p> <p>Top</p> <p>Middle</p> <p>Bottom</p> <p>Off</p> <p>The factory default is Top.</p>
		DDC/CI Support	<p>Allows the computer to control some OSD menu features such as Brightness, Contrast, and Color Temperature. Select:</p> <p>On</p> <p>Off</p> <p>The factory default is On.</p>
		Bezel Power LED	<p>Turns the light (LED) in the Power button on and off. When set to off, the light will remain off at all times.</p>
		Sleep Timer	<p>Provides the timer-adjustment menu options:</p> <p>Set Current Time — Sets the current time in hours and minutes.</p> <p>Set Sleep Time — Sets the time you want to place the monitor in sleep mode.</p> <p>Set On Time — Sets the time you want the monitor to wake up from sleep mode.</p> <p>Timer — Sets the Sleep Timer feature on or off; the default setting is Off.</p> <p>Sleep Now — Immediately sets the monitor to enter sleep mode.</p>
	Language		<p>Selects the language in which the OSD menu is displayed. The factory default is English.</p>
	Information		<p>Selects and displays important information about the monitor.</p>
		Current Settings	<p>Provides the current input video mode.</p>
		Recommended Settings	<p>Provides the recommended resolution mode and refresh rate for the monitor.</p>
		Serial Number	<p>Reports the serial number of the monitor. The serial number is needed if contacting HP technical support.</p>

Icon	Main Menu Options	Sub-menu Options	Description
		FW Version	Reports the firmware version of the monitor.
		Backlight Hours	Reports the total hours of backlight operation.
		Service Support	For service support, see the HP Technical Support website at http://www.hp.com/support .
	Factory Reset		Returns settings to factory defaults.
	Source Control		Selects the video input signal. The factory default by priority is DVI, HDMI, and then VGA.
		DVI	Selects DVI as the video input signal.
		HDMI	Selects HDMI as the video input signal.
		VGA	Selects VGA as the video input signal.
		Default Source	Selects the default or primary video input signal when the monitor is connected to two active and valid video sources. The monitor automatically determines the video format.
		Auto Switch Source	Turns the system's automatic video signal input to On or Off. The factory default is On.
	Exit		Exits the OSD menu screen.

Identifying Monitor Conditions

Special messages appear on the monitor screen for the following monitor conditions:

- **Monitor Status**—When the monitor is powered on or when the input source signal is changed, a Monitor Status message appears for 5 seconds. The message shows which input is the current active signal, the status of the auto-switch source setting (On or Off), the default source signal, the current preset display resolution, and the recommended preset display resolution.
- **Input Signal Out of Range**—Indicates the monitor does not support the video card's input signal because its resolution or refresh rate are set higher than the monitor supports. Change your video card settings to a lower resolution or refresh rate. Restart your computer for the new settings to take effect.
- **Power Button Lockout**—Indicates the power button is locked. If the power button is locked, the warning message Power Button Lockout appears. If the power button is locked, press and hold the power button for 10 seconds to unlock the power button function. If the power button is unlocked, press and hold the power button for 10 seconds to lock out the power button function.
- **Monitor Going to Sleep**—Indicates the screen display is entering a sleep mode.

- Check Video Cable—Indicates a video input cable is not properly connected to the computer or monitor.
- OSD Lockout—The OSD can be enabled or disabled by pressing and holding the Menu button on the front panel for 10 seconds. If the OSD is locked, the warning message OSD Lockout appears for 10 seconds. If the OSD is locked, press and hold the Menu button for 10 seconds to unlock the OSD. If the OSD is unlocked, press and hold the Menu button for 10 seconds to lock the OSD.
- Dynamic Contrast Ratio ON—Indicates that DCR is turned on.
- Dynamic Contrast Ratio OFF—Indicates that DCR has been turned off in the OSD or was automatically turned off after changes were made to Brightness, Contrast, or Quick View in the OSD.
- No Input Signal—Indicates the monitor is not receiving a video signal from the computer on the monitor video input connector. Verify if the computer or input signal source is off or in the power-saver mode.

Power-Saver Feature

When the monitor is in normal operating mode, the Power light is blue and the monitor uses the normal watts of power. For power usage, see the [Technical Specifications on page 21](#) section.

The monitor also supports a power-saver mode that is controlled by the computer. When the monitor is in the reduced-power state, the monitor screen is blank, the backlight is off, the Power light is amber, and the monitor uses minimum power. When the monitor is "awakened," a brief warm-up period occurs before the monitor returns to normal operating mode. The energy-saving reduced power state activates if the monitor does not detect either the horizontal sync signal or the vertical sync signal. The power-saver feature must be activated on your computer for this feature to work.

For instructions on setting energy-saver features (sometimes called power-management features), see your computer documentation.



NOTE: The energy-saver feature works only when the monitor is connected to computers that have energy-saver features.

A Troubleshooting

Resolving Common Issues

Issue	Solution
Power LED is not on.	<p>Make sure the Power button is on, and the power cord is properly connected to a grounded power outlet and to the monitor.</p> <p>Select Management in the OSD menu, and then select Bezel Power LED. Verify that the Bezel Power LED option is set to Off and, if so, set to On mode.</p>
Screen is blank.	<p>Connect the power cord.</p> <p>Turn on the power. Connect the video cable properly. For more information, see Setting Up the Monitor on page 6.</p> <p>Press a key on the keyboard or move the mouse to turn off the screen-blanking utility.</p>
Image appears blurred, indistinct, or too dark.	<p>Press the Menu button to open the OSD menu, and adjust the brightness and contrast scales.</p>
Check Video Cable appears on screen.	<p>Connect the appropriate video cable (VGA, DVI, or HDMI) between the computer and monitor. Be sure that the computer power is off while connecting the video cable.</p>
Input Signal Out of Range appears on screen.	<p>Restart your computer and enter Safe Mode.</p> <p>Change your settings to a supported setting (see the table in Preset Video Modes on page 22).</p> <p>Restart your computer so that the new settings take effect.</p>
Picture is fuzzy and has ghosting, shadowing issue.	<p>Adjust the contrast and brightness controls.</p> <p>Make sure that you are not using an extension cable or switch box. HP recommends plugging the monitor directly into the graphic card output connector on the back of your computer.</p>
Unable to set the monitor to the optimal resolution.	<p>Make sure the graphics card supports the optimal resolution.</p> <p>Make sure the latest supported driver is installed for the graphics card. For HP and Compaq systems, you can download the latest graphics driver for your system from the HP website at http://www.hp.com/support. For other systems, see the website for your graphics card.</p>
Screen is black or displaying at a lower resolution while displaying high-definition (HD) content.	<p>Verify that your monitor and computer support HDCP. For more information, see the High-Bandwidth Digital Content Protection (HDCP) on page 9 or HP website at http://www.hp.com/support.</p>
No Plug and Play.	<p>In order for the Plug and Play feature of the monitor to work, you must have a computer and graphic card that are compatible with Plug and Play. Check with your computer manufacturer.</p> <p>Inspect the monitor video cable, and make sure that none of the pins are bent.</p> <p>Make sure that the monitor drivers are installed. For more information, see the Installing Drivers on page 11 section. Monitor drivers are also available at the HP website at http://www.hp.com/support.</p>

Issue	Solution
Picture bounces, flickers, or wave pattern is present in the picture.	<p>Move electrical devices that might cause electrical interference as far away from the monitor as possible.</p> <p>Use the maximum refresh rate that your monitor is capable of at the resolution that you are using.</p>
Using HDMI connection, unable to hear audio.	The monitor does not provide an audio solution. The audio stream must be connected directly to external speakers or to an audio receiver.
Monitor is always in sleep mode (amber LED).	<p>Power to the computer must be turned on.</p> <p>The computer graphic card must be snugly seated in the slot.</p> <p>Verify that the monitor video cable is properly connected to the computer.</p> <p>Inspect the monitor video cable, and make sure that none of the pins are bent.</p> <p>Verify that your computer is operational: Press the Caps Lock key and observe the Caps Lock LED found on most keyboards. The LED must either turn on or off after hitting the Caps Lock key.</p>

Getting Support from the HP website

Before you contact customer service, see the HP Technical Support website at <http://www.hp.com/support>. Select your country/region, and then follow the links to the support page for your monitor.

Preparing to Call Technical Support

If you cannot solve an issue by using the troubleshooting tips in this section, you might have to call technical support. For technical support contact information, see the printed documentation included with the monitor.

Have the following information available when you call:

- Monitor model number (located on label on back of monitor)
- Monitor serial number (located on label on back of monitor or in the OSD display in the Information menu)
- Purchase date on invoice
- Conditions under which the problem occurred
- Error messages received
- Hardware configuration
- Name and version of hardware and software you are using

Locating the Rating Label

The rating label on the monitor provides the product number and serial number. You might need these numbers when contacting HP about your monitor model.

The rating label is on the bottom of the monitor.

B Technical Specifications

All specifications represent the typical specifications provided by HP's component manufacturers; actual performance might vary either higher or lower.

HP x2301 Model

Table B-1 x2301 Specifications

Display Type:	TFT LCD active matrix
Viewable Image Size:	58.42 cm (23.0 in.) diagonal
Video Input Terminals:	VGA, DVI, HDMI
Tilt:	-5° to +15°
Maximum Weight (unpacked):	3.5 kg (7.7 lb)
Dimensions (h x w x d):	399.9 x 552.1 x 138.7 mm (15.74 x 21.74 x 5.46 in)
Maximum Graphics Resolution:	1920 x 1080 @ 60 Hz
Optimum Graphics Resolution:	1920 x 1080 @ 60 Hz
Text Mode:	720 x 400
Pixel Pitch:	0.265 x 0.265 mm
Horizontal Frequency:	24 to 94 kHz
Vertical Frequency:	50 to 76 Hz
Operating Temperature:	5° to 35° C (41° to 95° F)
Non-Operating Humidity:	-20° to 60° C (-4° to 140° F)
Operating Humidity:	20% to 80%
Non-Operating Humidity:	5% to 95%
Operating Altitude:	0 to 3,658 meters (0 to 12,000 feet)
Storage Altitude:	0 to 12,192 meters (0 to 40,000 feet)
Power Source:	100–240 VAC (ca), 50/60 Hz
Maximum Power Consumption:	30 watts (W)
Typical Power Consumption:	28 watts (W)
Sleep Power Consumption:	0.5 watts (W)

Preset Video Modes

The monitor automatically recognizes many preset video input modes that will appear properly sized and centered on the screen.

Table B-2 Factory Preset Video Input Modes

Preset	Resolution	Horizontal Frequency (kHz)	Vertical Frequency (Hz)
1	640 x 480	31.469	59.94
2	720 x 400	31.469	70.087
3	800 x 600	37.879	60.317
4	1024 x 768	48.363	60.004
5	1280 x 720	45.00	60.00
6	1280 x 960	60.00	60.00
7	1280 x 1024	63.98	60.02
8	1440 x 900	55.94	59.89
9	1600 x 1200	75.00	60.00
10	1680 x 1050	65.29	60.00
11	1920 x 1080	67.50	60.00

Table B-3 HDMI High Definition Factory Preset Video Modes

Preset	HD Video Display Resolution	Resolution	Horizontal Frequency (kHz)	Vertical Frequency (Hz)
1	480p	720 x 480	31.469	60
2	720p60	1280 x 720	45	60
3	576p	720 x 576	31.25	50
4	720p50	1280 x 720	37.5	50
5	1080p60	1920 x 1080	67.5	60
6	1080p50	1920 x 1080	56.25	50

Entering User Modes

The video controller signal might occasionally call for a mode that is not preset if:

- You are not using a standard graphics adapter.
- You are not using a preset mode.

If this occurs, you have to readjust the parameters of the monitor screen by using the on-screen display. Your changes can be made to any or all of these modes and saved in memory. The monitor

automatically stores the new setting, then recognizes the new mode just as it does a preset mode. In addition to the factory preset modes, there are at least ten user modes that can be entered and stored.

LCD Monitor Quality and Pixel Policy

Your LCD Monitor uses high-precision technology, manufactured according to high standards, to help guarantee trouble-free performance. Nevertheless, the display might have cosmetic imperfections that appear as small bright or dark spots. This is common to all LCD displays that are used in products supplied by all vendors and is not specific to your LCD Monitor. These imperfections are caused by one or more defective pixels or subpixels.

A pixel consists of one red, one green, and one blue subpixel. A defective whole pixel is always turned on (a bright spot on a dark background), or it is always off (a dark spot on a bright background). The first is the more visible of the two. A defective subpixel (dot defect) is less visible than a defective whole pixel, and is small and only visible on a specific background.

To locate defective pixels, the monitor must be viewed under normal operating conditions and in normal operating mode at a supported resolution and refresh rate, from a distance of approximately 50 cm (16 inches).

For more information about your LCD Monitor and pixel policy, see the HP website at <http://www.hp.com/support>. To find pixel policy information on the HP website, type in "HP Pixel Policy" in the search box and press Enter.

C Agency Regulatory Notices

Federal Communications Commission Notice

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

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio or television technician for help.

Modifications

The FCC requires the user to be notified that any changes or modifications made to this device that are not expressly approved by Hewlett Packard Company might void the user's authority to operate the equipment.

Cables

Connections to this device must be made with shielded cables with metallic RFI/EMI connector hoods to maintain compliance with FCC Rules and Regulations.

Declaration of Conformity for Products Marked with the FCC Logo (United States Only)

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

1. This device might not cause harmful interference.
2. This device must accept any interference received, including interference that might cause undesired operation.

For questions regarding the product, contact:

Hewlett Packard Company

P. O. Box 692000, Mail Stop 530113

Houston, Texas 77269-2000

1-800-HP-INVENT (1-800 474-6836)

For questions regarding this FCC declaration, contact:

Hewlett Packard Company

P. O. Box 692000, Mail Stop 510101

Houston, Texas 77269-2000

(281) 514-3333

To identify this product, see the Part, Series, or Model number found on the product.

Canadian Notice

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Avis Canadien

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

Japanese Notice

この装置は、クラスB情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。取扱説明書に従って正しい取り扱いをして下さい。

VCCI-B

Korean Notice

B급 기기
(가정용 방송통신기기)

이 기기는 가정용(B급)으로 전자파적합등록을 한 기기로서 주로 가정에서 사용하는 것을 목적으로 하며, 모든 지역에서 사용할 수 있습니다.

Power Cord Set Requirements

The monitor power supply is provided with Automatic Line Switching (ALS). This feature allows the monitor to operate on input voltages between 100–120V or 200–240V.

The power cord set (flexible cord or wall plug) received with the monitor meets the requirements for use in the country where you purchased the equipment.

If you must obtain a power cord for a different country, purchase a power cord that is approved for use in that country.

The power cord must be rated for the product and for the voltage and current marked on the electrical ratings label of the product. The voltage and current rating of the cord must be greater than the voltage and current rating marked on the product. In addition, the cross-sectional area of the wire must be a minimum of 0.75 mm² or 18 AWG, and the length of the cord must be between 6 ft (1.8 m) and 12 ft (3.6 m). If you have questions about the type of power cord to use, contact an authorized HP service provider.

A power cord must be routed so that it is not likely to be walked on or pinched by items placed upon it or against it. Particular attention must be paid to the plug, electrical outlet, and the point where the cord exits from the product.

Japanese Power Cord Requirements

For use in Japan, use only the power cord received with this product.

⚠ CAUTION: Do not use the power cord received with this product on any other products.

Product Environmental Notices

ENERGY STAR® Qualification

HP Displays marked with the ENERGY STAR® certification mark meet the requirements of the U.S. Environmental Protection Agency (EPA) ENERGY STAR program. The EPA ENERGY STAR® certification mark does not imply endorsement by the EPA. As an ENERGY STAR Partner, Hewlett Packard Company has determined that this product meets the ENERGY STAR® program requirements for display energy efficiency.

The following ENERGY STAR® certification mark appears on all ENERGY STAR qualified displays:



The ENERGY STAR® program specifications for displays and computers were created by the EPA to promote energy efficiency and reduce air pollution through more energy-efficient equipment in homes, offices, and factories. One way products achieve this goal is by using the Microsoft Windows power management feature to reduce power consumption when the product is not in use.

The power management feature enables the computer to initiate a low-power or “sleep” mode after a period of user inactivity. When used with an external ENERGY STAR® qualified display, this feature

also supports similar power management features for the display. To take advantage of these potential energy savings, users must use the default power management settings that are provided with ENERGY STAR qualified computers and displays. The default power management settings on ENERGY STAR qualified computers are preset to behave in the following ways when the system is operating on AC power:

- Turn off an external display after 15 minutes of user inactivity.
- Initiate a low power sleep mode for the computer after 30 minutes of user inactivity.

ENERGY STAR® qualified computers exit the low power sleep mode and ENERGY STAR qualified displays resume operation when the user resumes use of the computer. Examples include the user pressing the power/sleep button, receiving an input signal from an input device, receiving an input signal from a network connection with the Wake On LAN (WOL) feature enabled, etc. Additional information on the ENERGY STAR® program, its environmental benefits and the potential energy and financial savings of the power management feature can be found on the EPA ENERGY STAR Power Management website at <http://www.energystar.gov/powermanagement>.

Disposal of Waste Equipment by Users in Private Household in the European Union



This symbol on the product or on its packaging indicates that this product must not be disposed of with your household waste. Instead, it is your responsibility to dispose of your waste equipment by handing it over to a designated collection point for the recycling or waste electrical and electronic equipment. The separate collection and recycling of your waste equipment at the time of disposal will help to conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste equipment for recycling, please contact the local city office, the household waste disposal service or the shop where you purchased the product.

Chemical Substances

HP is committed to providing our customers with information about the chemical substances in our products as needed to comply with legal requirements such as REACH (Regulation EC No 1907/2006 of the European Parliament and Council). A chemical information report for this product can be found at the EU REACH Declarations page in the HP website at <http://www.hp.com/go/reach>.

HP Recycling Program

HP encourages customers to recycle used electronic hardware, HP original print cartridges, and rechargeable batteries. For more information about recycling programs, go to the HP Planet Partners Recycling Program website at <http://www.hp.com/recycle>.

Restriction of Hazardous Substances (RoHS)

A Japanese regulatory requirement, defined by specification JIS C 0950, 2005, mandates that manufacturers provide Material Content Declarations for certain categories of electronic products

offered for sale after July 1, 2006. To view the JIS C 0950 material declaration for this product, visit the HP website at <http://www.hp.com/go/jisc0950>.

2008年、日本における製品含有表示方法、JISC0950が公示されました。製造事業者は、2006年7月1日以降に販売される電気・電子機器の特定化学物質の含有につきまして情報提供を義務付けられました。製品の部材表示につきましては、www.hp.com/go/jisc0950を参照してください。

产品中有毒有害物质或元素的名称及含量

根据中国《电子信息产品污染控制管理办法》

LCD 显示器

部件名称	有毒有害物质或元素					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
液晶显示屏 - CCFL	X	X	○	○	○	○
液晶显示屏 - WLED	X	○	○	○	○	○
机箱 / 其他	X	○	○	○	○	○

○: 表示该有毒或有害物质在该部件所有均质材料中的含量均在 SJ/T11363-2006 标准规定的限量要求以下。

X: 表示该有毒或有害物质至少在该部件的某一均质材料中的含量超出 SJ/T11363-2006 标准规定的限量要求。

表中标有 "X" 的所有部件都符合欧盟 RoHS 法规，即“欧洲议会和欧洲理事会 2003 年 1 月 27 日关于在电子电气设备中限制使用某些有害物质的 2002/95/EC 号指令”。

注：环保使用期限的参考标识取决于产品正常工作的温度和湿度等条件。

Turkey EEE Regulation

In Conformity with the EEE Regulation

EEE Yönetmeliğine Uygundur