



# HP EliteDisplay E190i LED Backlit IPS 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.

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# Table of contents

<b>1 Product Features</b> .....	<b>1</b>
HP LCD Monitors .....	1
<b>2 Setting Up the Monitor</b> .....	<b>3</b>
Attaching the Stand to the Monitor .....	3
Rear Components .....	4
Connecting the Cables .....	5
Front Panel Controls .....	7
Adjusting the Monitor .....	8
Turning on the Monitor .....	10
HP Watermark and Image Retention Policy .....	10
Connecting USB Devices .....	10
Removing the Monitor Pedestal Base .....	11
Mounting the Monitor .....	12
Locating the Rating Labels .....	12
Installing a Cable Lock .....	13
<b>3 Finding More Information</b> .....	<b>14</b>
Reference Guides .....	14
Product Support .....	14
<b>Appendix A Technical Specifications</b> .....	<b>15</b>
EliteDisplay E190i .....	15
Recognizing Preset Display Resolutions .....	16
EliteDisplay E190i .....	16
Entering User Modes .....	16
Energy Saver Feature .....	17



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# 1 Product Features

## HP LCD Monitors

The LCD (liquid crystal display) monitors have an active matrix, thin-film transistor (TFT) panel. The monitor's features include:

- EliteDisplay E190i model, 47.99 cm (18.89-inch) diagonal viewable area display with 1280 x 1024 resolution, plus full-screen support for lower resolutions: includes custom scaling for maximum image size
- Non-glare panel with an LED backlight
- Wide viewing angle to allow viewing from a sitting or standing position, or moving from side-to-side
- Tilt capability
- Pivot capability to rotate display to portrait mode
- Swivel and height adjustment capabilities
- Removable stand for flexible monitor panel mounting solutions
- Video signal input to support VGA analog (cable provided)
- Video signal input to support DVI digital (cable provided)
- Video signal input to support DisplayPort digital (cable optional in some countries)
- USB 2.0 hub with one upstream port (connects to the computer) and two downstream ports (connects to USB devices)
- USB cable provided to connect the monitor's USB hub to the USB connector on the computer
- Supports an optional HP speaker bar
- Plug and play capability if supported by the system
- Privacy filter slots to insert filters (purchased separately) to block side screen viewing
- Security slot provision on rear of monitor for optional cable lock
- Cable management feature for placement of cables and cords
- On-Screen Display (OSD) adjustments in several languages for easy setup and screen optimization
- HP Display Assistant for adjusting monitor settings and enabling theft deterrence features
- HDCP copy protection on DVI and DisplayPort inputs
- Software and documentation disc that includes monitor drivers and product documentation
- Energy saver feature to meet requirements for reduced power consumption

- Intelligent Management AssetControl
- Compliant with the following regulated specifications (for additional certifications and agency notices, refer to the *HP LCD Monitors Reference Guide* on the disc included with this monitor):
  - European Union CE Directives
  - Swedish TCO Requirements

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## 2 Setting Up the Monitor

To set up the monitor, ensure that the power is turned off to the monitor, computer system, and other attached devices, then follow the instructions below.

### Attaching the Stand to the Monitor

1. Lift the monitor from its box and place it face down on a flat surface.
2. Attach the base to the stand.



3. Tighten the screw on the bottom of the stand by hand.



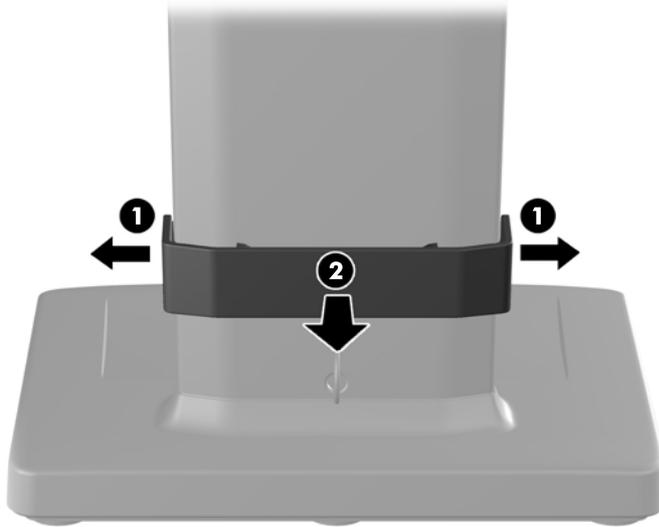
# Rear Components



Component	Function
1 AC Power Connector	Connects the AC power cord to the monitor
2 DisplayPort	Connects the DisplayPort cable to the monitor (select regions only)
3 DVI-D	Connects the DVI-D cable to the monitor
4 VGA	Connects the VGA cable to the monitor
5 USB Upstream Connector	Connects the USB hub cable to the monitor's USB hub connector and to a host USB port/hub
6 USB Downstream Connectors (2)	Connects optional USB devices to the monitor

## Connecting the Cables

1. Place the monitor in a convenient, well-ventilated location near the computer.
2. Remove the cable management clip from the pedestal by pulling outward on the two sides of the clip (1) then lifting the clip off the pedestal (2).

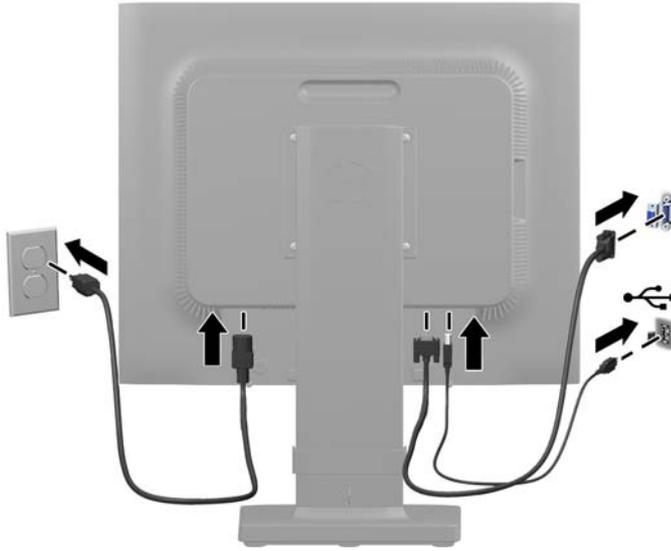


3. Connect a VGA signal cable, DVI-D signal cable, or DisplayPort signal cable.

 **NOTE:** The monitor is capable of supporting either analog or digital input. The video mode is determined by the video cable used. The monitor will automatically determine which inputs have valid video signals. The inputs can be selected by pressing the [Input](#) button on the front panel or through the On-Screen Display (OSD) feature by pressing the [Menu](#) button.

- For analog operation, connect the VGA signal cable to the VGA connector on the rear of the monitor and the other end to the VGA connector on the computer (cable provided).
  - For DVI digital operation, connect the DVI-D signal cable to the DVI connector on the rear of the monitor and the other end to the DVI connector on the computer (cable provided).
  - For DisplayPort digital operation, connect the DisplayPort signal cable to the DisplayPort connector on the rear of the monitor and the other end to the DisplayPort connector on the computer (cable is optional in some countries).
4. Connect one end of the provided USB cable to the USB hub connector on the rear panel of the computer, and the other end to the upstream USB connector on the monitor.

5. Connect one end of the power cord to the AC power connector on the back of the monitor, and the other end to an electrical wall outlet.



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

Do not disable the power cord grounding plug. The grounding plug is an important safety feature.

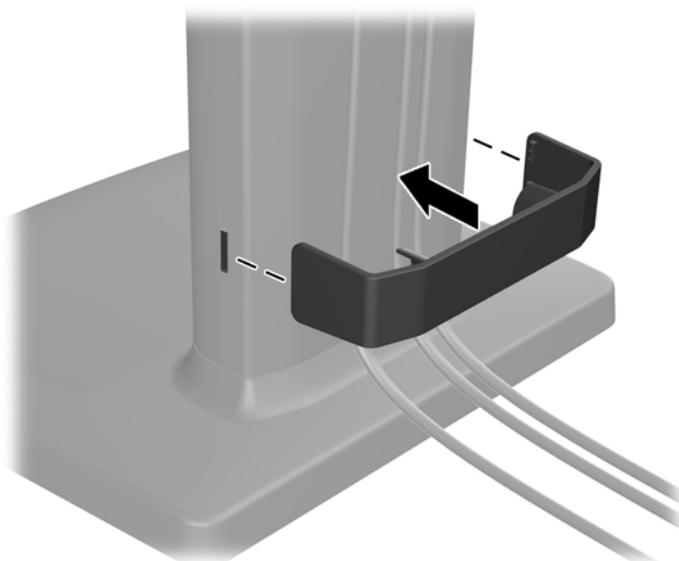
Plug the power cord into a grounded (earthed) electrical outlet that is easily accessible at all times.

Disconnect power from the equipment by unplugging the power cord from the electrical outlet.

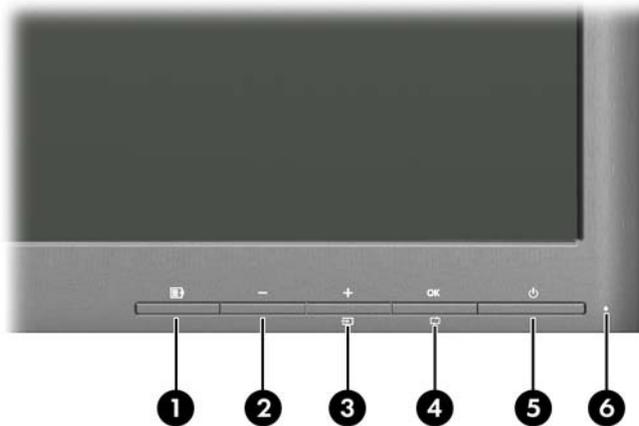
For your safety, do not place anything on power cords or cables. Arrange them so that no one may accidentally step on or trip over them. Do not pull on a cord or cable. When unplugging from the electrical outlet, grasp the cord by the plug.

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6. Secure the cables in place with the cable management clip. Press the clip straight down on the curved neck of the pedestal ensuring that the tabs on the sides of the clip snap into the slots on the pedestal.



# Front Panel Controls



**Table 2-1** Monitor Front Panel Controls

Control	Function
1 	Menu Opens, selects or exits the OSD menu.
2 	Minus If the OSD menu is on, press to navigate backward through the OSD menu and decrease adjustment levels.
3 	Plus/Input If the OSD menu is on, press to navigate forward through the OSD menu and increase adjustment levels.  If the OSD menu is inactive, press to activate the Input button that chooses the video signal input (VGA, DVI, or DisplayPort)
4 	OK/auto If the OSD menu is on, press to select the highlighted menu item.  If the OSD menu is inactive, press to activate the auto adjustment feature to optimize the screen image.
5 	Power Turns the monitor on or off.
6	Power LED White = Fully powered. Amber = Sleep mode. Flashing Amber = Sleep Timer mode.

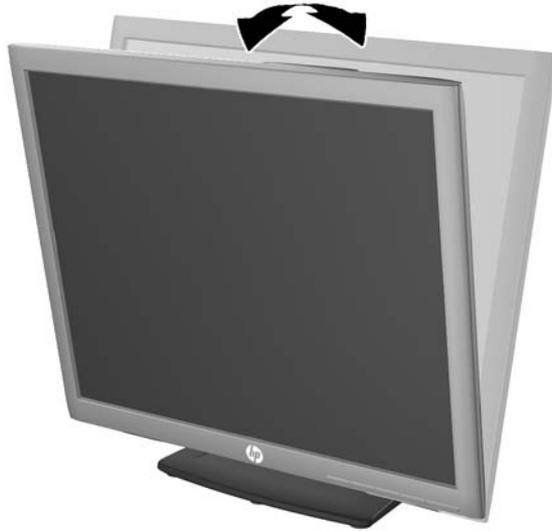
 **NOTE:** To view an OSD menu simulator, visit the HP Customer Self Repair Services Media Library at <http://www.hp.com/go/sml>.

# Adjusting the Monitor

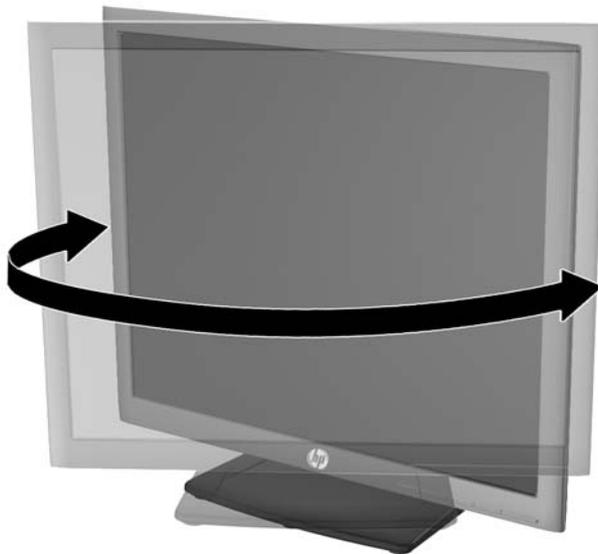
 **NOTE:** Your monitor model may look different than the model in the following illustrations.

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1. Tilt the monitor's panel forward or backward to set it to a comfortable eye level.

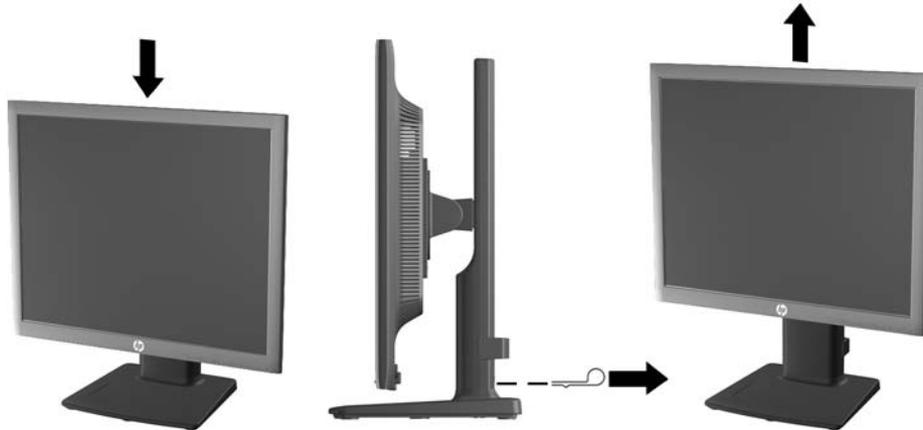


2. Swivel the monitor to the left or right for the best viewing angle.



3. Adjust the monitor's height to a comfortable position for your individual workstation. The monitor's top bezel edge should not exceed a height that is parallel to your eye height. A monitor that is positioned low and reclined may be more comfortable for users with corrective lenses. The monitor should be repositioned as you adjust your working posture throughout the work day.

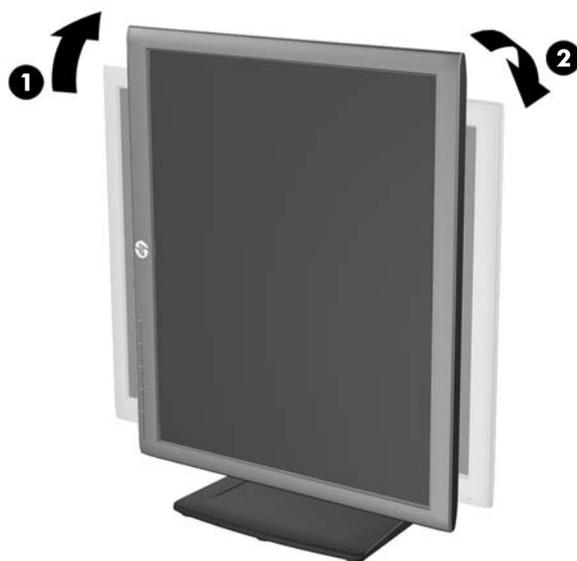
 **NOTE:** The monitor stand ships with the display head locked in the lowest height position. To adjust the display head to full height, remove the lock pin and then pull up on the display head to raise it to the full-height position.



4. Pivot the monitor from landscape to portrait orientation viewing to adapt to your application.
  - a. Adjust the monitor to full height position and tilt the monitor back to full tilt position (1).
  - b. Pivot the monitor clockwise 90° from landscape to portrait orientation (2).

 **CAUTION:** If the monitor is not in full height and full tilt position when pivoting, the bottom right corner of the monitor panel will come in contact with the base and potentially cause damage to the monitor.

If you are adding an optional speaker bar to the monitor, install it after pivoting the monitor. The speaker bar will come in contact with the base when pivoting and potentially cause damage to the monitor or speaker bar.



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 **NOTE:** To view information on the screen in portrait mode, you can install the HP Display Assistant software included on the software and documentation disc. The position of the OSD menu can also be rotated to portrait mode. To rotate the OSD menu, access the OSD menu by pressing the **Menu** button on the front panel, select **OSD Control** from the menu, then select **Rotate OSD**.

---

## Turning on the Monitor

1. Press the power button on the computer to turn it on.
2. Press the power button on the front of the monitor to turn it on.

 **CAUTION:** Burn-in image damage may occur on monitors that display the same static image on screen for a prolonged period of time.\* To avoid burn-in image damage on the monitor screen, you should always 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 may occur on all LCD screens. Monitors with a “burned-in image” are not covered under the HP warranty.

\* A prolonged period of time is 12 consecutive hours of non-use.

 **NOTE:** If pressing the power button has no effect, the Power Button Lockout feature may be enabled. To disable this feature, press and hold the monitor power button for 10 seconds.

 **NOTE:** You can disable the power LED in the OSD menu. Press the **Menu** button on the front of the monitor, then select **Management > Bezel Power LED > Off**.

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

The monitor automatically scans the signal inputs for an active input and uses that input for the display. If two or more inputs are active, the monitor will display the default input source. If the default source is not one of the active inputs, then the monitor will display the highest ranking priority input in the following order: DisplayPort, DVI, then VGA. You can change the default source in the OSD by pressing the front panel **Menu** button and selecting **Input Control > Default Input**.

## HP Watermark and Image Retention Policy

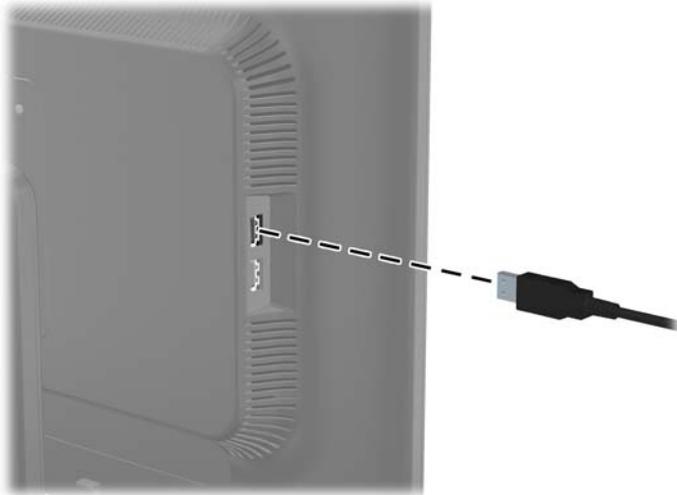
The IPS monitor models are designed with IPS (In-Plane Switching) display technology which provides ultra-wide viewing angles and advanced image quality. IPS monitors are suitable for a wide variety of advanced image quality applications. This panel technology, however, is not suitable for applications that exhibit static, stationary or fixed images for long periods of time without the use of screen savers. These types of applications may include camera surveillance, video games, marketing logos, and templates that are displayed on the screen for a prolonged period of time. Static images may cause image retention damage that could look like stains or watermarks on the monitor's screen.

Monitors in use for 24 hours per day that result in image retention damage are not covered under the HP warranty. To avoid image retention damage, always turn off the monitor when it is not in use or use the power management setting, if supported on your system, to turn off the display when the system is idle.

## Connecting USB Devices

USB connectors are used to connect devices such as a digital camera, USB keyboard, or USB mouse. Two USB connectors are located on the side panel of the monitor.

 **NOTE:** You must connect the USB hub cable from the monitor to the computer to enable the USB 2.0 ports on the monitor. Refer to Step 4 in [Connecting the Cables on page 5](#).

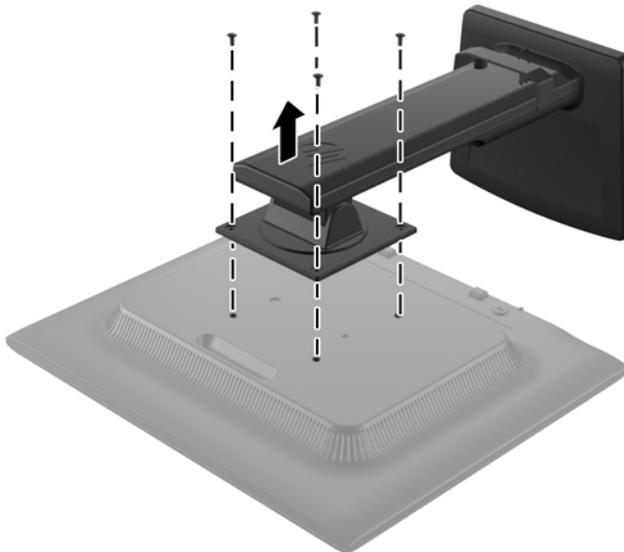


## Removing the Monitor Pedestal Base

You can remove the monitor panel from the pedestal base to install the panel on a wall, a swing arm, or other mounting fixture.

 **CAUTION:** Before beginning to disassemble the monitor, be sure the monitor is turned off and the power and signal cables are both disconnected. Also disconnect all USB cables connected to the monitor.

1. Disconnect and remove the signal, power, and USB cables from the monitor.
2. Lay the monitor face down on a flat surface covered by a clean, dry cloth.
3. Remove the four screws from the monitor stand.



## Mounting the Monitor

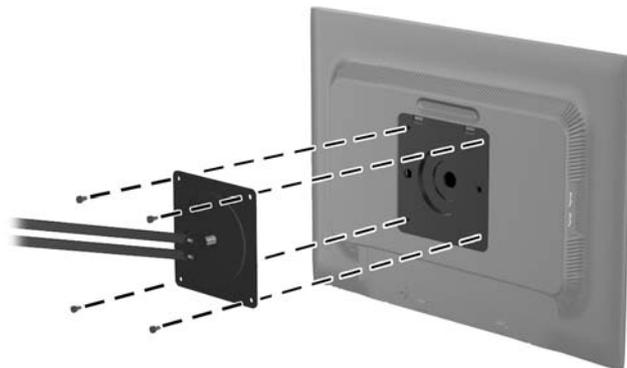
The monitor panel can be attached to a wall, swing arm, or other mounting fixture.

 **NOTE:** This apparatus is intended to be supported by UL or CSA Listed wall mount bracket.

1. Remove the monitor panel from the pedestal base. Refer to [Removing the Monitor Pedestal Base on page 11](#).

 **CAUTION:** This monitor supports the VESA industry standard 100 mm mounting holes. To attach a third-party mounting solution to the monitor, four 4 mm, 0.7 pitch, and 10 mm long screws are required. Longer screws must not be used because they may damage the monitor. It is important to verify that the manufacturer's mounting solution is compliant with the VESA standard and is rated to support the weight of the monitor display panel. For best performance, it is important to use the power and video cables provided with the monitor.

2. To attach the monitor to a swing arm, insert four 10mm screws through the holes on the swing arm plate and into the mounting holes on the monitor.

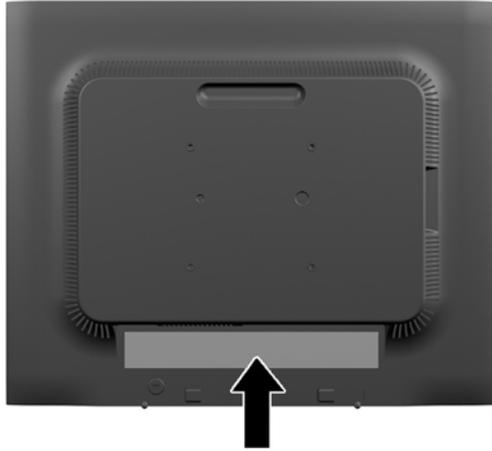


To attach the monitor to other mounting fixtures, follow the instructions included with the mounting fixture to ensure that the monitor is safely attached.

3. Reconnect the cables to the monitor panel.

## Locating the Rating Labels

The rating labels on the monitor provide the spare part number, product number, and serial number. You may need these numbers when contacting HP about the monitor model. The rating labels are located on the rear panel of the monitor display head.



## Installing a Cable Lock

You can secure the monitor to a fixed object with an optional cable lock available from HP.



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## 3 Finding More Information

### Reference Guides

Refer to the *HP LCD Monitors Reference Guide* included on the disc with your monitor for additional information on:

- Optimizing monitor performance
- Safety and maintenance guidelines
- Installing software from the disc
- Using the OSD menu
- Downloading software from the Web
- Agency regulatory information
- Troubleshooting and recommended solutions to common problems

For information on theft deterrence, refer to the *HP Display Assistant User Guide* included on the disc with your monitor.

### Product Support

For additional information on using and adjusting your monitor, go to <http://www.hp.com/support>. Select your country or region, select **Drivers and Downloads**, and then enter your monitor model in the Find by Product search field.



**NOTE:** The monitor user guide, reference guide, and drivers are available at <http://www.hp.com/support>.

If the information provided in the guide or in the *HP LCD Monitors Reference Guide* do not address your questions, you can contact support. For U.S. support, go to <http://www.hp.com/go/contactHP>. For worldwide support, go to [http://welcome.hp.com/country/us/en/wwcontact\\_us.html](http://welcome.hp.com/country/us/en/wwcontact_us.html).

Here you can:

- Chat online with an HP technician



**NOTE:** When support chat is not available in a particular language, it is available in English.

- E-mail support
- Find support telephone numbers
- Locate an HP service center

# A Technical Specifications

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

## EliteDisplay E190i

**Table A-1 EliteDisplay E190i Specifications**

Display Type	LED Backlit IPS	
Viewable Image Size	47.99 cm diagonal	18.89-inch diagonal
Aspect Ratio	5:4	
Tilt	-5 to 25°	
Swivel	-180 to 180°	
Pivot	90°	
Maximum Weight (Unpacked)	4.8 kg	10.58 lbs
Dimensions (include base)		
Height (highest position)	48.64 cm	19.15 inches
Height (lowest position)	36.53 cm	14.38 inches
Depth	19.21 cm	7.56 inches
Width	41.78 cm	16.45 inches
Maximum Graphic Resolution	1280 x 1024 (60 Hz)	
Optimum Graphic Resolution	1280 x 1024 (60 Hz)	
Text Mode	720 x 400	
Dot Pitch	0.2928 (H) x 0.2928 (W) mm	
Pixels Per Inch	86.9 PPI	
Horizontal Frequency	24 to 83 kHz	
Vertical Refresh Rate	50 to 76 Hz	
Environmental Requirements Temperature		
Operating Temperature	5 to 35° C	41 to 95° F
Storage Temperature	-20 to 60° C	-4 to 140° F
Relative Humidity	20 to 80%	
Power Source	100 – 240 VAC 50/60 Hz	
Altitude:		
Operating	0 to 5000 m	0 to 16,400 feet
Storage	0 to 12192 m	0 to 40,000 feet

**Table A-1 EliteDisplay E190i Specifications (continued)**

Measured Power Consumption:	
Full Power	28.0 watts
Typical Settings	26.0 watts
Sleep	<0.5 watts
Switch Off	<0.5 watts
Input Terminal	One VGA connector, one DVI connector, and one DisplayPort connector (cables included)



**NOTE:** For the latest specifications or additional specifications on this product, go to <http://www.hp.com/go/productbulletin/> and search for your specific display model to find the model-specific QuickSpecs.

## Recognizing Preset Display Resolutions

The display resolutions listed below are the most commonly used modes and are set as factory defaults. This monitor automatically recognizes these preset modes and they will appear properly sized and centered on the screen.

### EliteDisplay E190i

**Table A-2 Factory Preset Modes**

Preset	Pixel Format	Horz Freq (kHz)	Vert Freq (Hz)
1	640 × 480	31.469	59.94
2	720 × 400	31.469	70.087
3	800 × 600	37.879	60.317
4	1024 × 768	48.363	60.004
5	1280 × 1024	63.981	60.02

## Entering User Modes

The video controller signal may 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 may need 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 10 user modes that can be entered and stored.

## Energy Saver Feature

The monitors support a reduced power state. The reduced power state will be entered into if the monitor detects the absence of either the horizontal sync signal and/or the vertical sync signal. Upon detecting the absence of these signals, the monitor screen is blanked, the backlight is turned off, and the power light is turned amber. When the monitor is in the reduced power state, the monitor will utilize .5 watts of power. There is a brief warm up period before the monitor will return to its normal operating mode.

Refer to the computer manual for instructions on setting energy saver features (sometimes called power management features).



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**NOTE:** The above power saver feature only works when connected to computers that have energy saver features.

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By selecting the settings in the monitor's sleep timer utility, you can also program the monitor to enter into the reduced power state at a predetermined time. When the monitor's sleep timer utility causes the monitor to enter the reduced power state, the power light blinks amber.



# HP LCD Monitors

## Reference Guide

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## About This Guide

This guide provides information on safety and maintenance guidelines, operating the monitor, and troubleshooting common problems.

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# Table of contents

<b>1 Optimizing Monitor Performance</b> .....	<b>1</b>
Use Caution When Setting Up the Monitor .....	1
To Get the Best Performance from Your Monitor .....	2
<b>2 Safety and Maintenance Guidelines</b> .....	<b>3</b>
Important Safety Information .....	3
Maintenance Guidelines .....	3
Cleaning the Monitor .....	4
Shipping the Monitor .....	4
<b>3 Operating the Monitor</b> .....	<b>5</b>
Setting Up the Monitor .....	5
Software and Utilities .....	5
The Information File .....	5
The Image Color Matching File .....	5
Installing the .INF and .ICM Files .....	6
Installing from the CD .....	6
Downloading from the Internet .....	6
Using and Adjusting the Monitor .....	6
Using the Auto-Adjustment Function .....	6
Adjusting the Monitor Settings .....	7
Using the On-Screen Display Menu .....	7
Optimizing Image Performance (Analog Input) .....	8
Sleep Timer .....	10
Using the HP Display Assistant or HP MyDisplay Software (select models) ....	11
Identifying Monitor Conditions .....	11
<b>Appendix A Troubleshooting</b> .....	<b>13</b>
Solving Common Problems .....	13
Online Technical Support .....	14
Preparing to Call Technical Support .....	14
Locating the Rating Labels .....	14
<b>Appendix B Agency Regulatory Notices</b> .....	<b>15</b>
Federal Communications Commission Notice .....	15
Modifications .....	15

Cables .....	15
Declaration of Conformity for Products Marked with the FCC Logo (United States Only) .....	15
Canadian Notice .....	16
Avis Canadien .....	16
European Union Regulatory Notice .....	16
German Ergonomics Notice .....	16
Japanese Notice .....	17
Korean Notice .....	17
Power Cord Set Requirements .....	17
Japanese Power Cord Requirements .....	17
Product Environmental Notices .....	17
ENERGY STAR® Qualification .....	17
Materials Disposal .....	18
Disposal of Waste Equipment by Users in Private Household in the European Union .....	18
HP Recycling Program .....	19
Chemical Substances .....	19
Restriction of Hazardous Substances (RoHS) .....	19
Turkey EEE Regulation .....	20
Ukraine Restriction of Hazardous Substances .....	20

<b>Appendix C LCD Monitor Quality and Pixel Policy .....</b>	<b>21</b>
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# 1 Optimizing Monitor Performance

## Use Caution When Setting Up the Monitor

To prevent damage to the monitor, do not touch the surface of the LCD panel. Pressure on the panel may cause non-uniformity of color or disorientation of the liquid crystals. If this occurs the screen will not recover to its normal condition.

If installing a base, lay the monitor face down on a flat surface covered with a protective sheet foam or non-abrasive cloth. This prevents the screen from getting scratched, defaced or broken as well as damage to the front panel buttons.

**Figure 1-1** Handling the Monitor



**NOTE:** Your monitor may look different from the monitor in this illustration.

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# To Get the Best Performance from Your Monitor

1. Be sure to install the latest graphics card driver from your graphics card manufacturer.
2. For monitors using VGA signal input, once the monitor is operating, press the **Auto** button on the monitor to optimize the display. If the Auto function does not fully correct the display, run the Auto-Adjustment software available on the CD included with the monitor and then press the **Auto** button.
3. Using the Display Properties settings of the computer's operating system, set your screen to the optimal resolution for your monitor size as indicated in the following table.

Monitor Size		Aspect Ratio Format	Optimal Resolution	Refresh Rate (Hz)
15 in	38.1 cm	4:3	1024 x 768	60
15 in	38.1 cm	16:9	1280 x 720	60
15.6 in	39.6 cm	16:9	1366 x 768	60
18.5 in	47 cm			
17 in	43.2 cm	5:4	1280 x 1024	60
19 in	48.3 cm			
17 in	43.2 cm	16:10	1440 x 900	60
19 in	48.3 cm			
20 in	50.8 cm	16:9	1600 x 900	60
20.1 in	51.1 cm	4:3	1600 x 1200	60
20.1 in	51.1 cm	16:10	1680 x 1050	60
22 in	55.9 cm			
21.5 in	54.6 cm	16:9	1920 x 1080	60
42 in	106.7 cm			
47 in	119.4 cm			
23 in	58.4 cm	16:10	1920 x 1200	60
24 in	61 cm	16:9		
27 in	68.6 cm			
30 in	76.2 cm	16:10	2560 x 1600	60

4. Install the most up-to-date driver on the computer if it is not already installed. The latest driver is on the CD included with the monitor, or you can download the latest driver from the HP monitors support Web site, <http://www.hp.com/support>.



**IMPORTANT:** For optimal video performance, use only the video cable(s) included with the monitor. To maximize the display life and avoid burn-in damage, activate a screen saver application or turn off the monitor when it is not in use for a prolonged period of time (12 consecutive hours of non-use).

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## 2 Safety and Maintenance Guidelines

### Important Safety Information

A power cord is included with the monitor. If another cord is used, use only a power source and connection appropriate for this monitor. For information on the correct power cord set to use with the monitor, refer to the [Power Cord Set Requirements on page 17](#).

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**⚠ 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 may 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, read the *Safety and Comfort Guide*. It describes proper workstation, setup, posture, and health and work habits for computer users, and provides important electrical and mechanical safety information. This guide is located on the Web at <http://www.hp.com/ergo> and/or on the documentation CD, if one is included with the monitor.

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**⚠ 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.

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**⚠ WARNING!** LCD monitors that are inappropriately situated on dressers, bookcases, shelves, desks, speakers, chests, or carts may fall over and cause personal injury.

Care should be taken to route all cords and cables connected to the LCD monitor so that they can not be pulled, grabbed, or tripped over.

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### 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.
- Use only a power source and connection appropriate for this monitor, as indicated on the label/back plate of the monitor.
- 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 cord does not exceed the rating of the cord. Look on the power label to determine the ampere rating (AMPS or A) for each device.

- Install the monitor near an 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.
- 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.

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- 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.
- Do not allow anything to rest on the power cord. Do not walk on the cord.
- Keep the monitor in a well-ventilated area, away from excessive light, heat or moisture.
- When removing the monitor stand, you must lay the monitor face down on a soft area to prevent it from getting scratched, defaced, or broken.

## 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.



**CAUTION:** Spray the cleaner onto a cloth and use the damp cloth to gently wipe the screen surface. Never spray the cleaner directly on the screen surface. It may 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 may damage the monitor.

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## Shipping the Monitor

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

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# 3 Operating the Monitor

## Setting Up the Monitor

Refer to the monitor user guide for your model to assemble the monitor and connect the cables.

## Software and Utilities

The CD that comes with the monitor contains files you can install on the computer:

- an .INF (Information) file
- an .ICM (Image Color Matching) file
- auto-adjustment pattern utility
- additional software for the monitor model

 **NOTE:** If the monitor does not include a CD, the .INF and .ICM files can be downloaded from the HP monitors support Web site. See [Downloading from the Internet on page 6](#) in this chapter.

## The Information File

The .INF file defines monitor resources used by Microsoft Windows operating systems to ensure monitor compatibility with the computer's graphics adapter.

This monitor is Microsoft Windows Plug and Play compatible and the monitor will work correctly without installing the .INF file. Monitor Plug and Play compatibility requires that the computer's graphic card is VESA DDC2-compliant and that the monitor connects directly to the graphics card. Plug and Play does not work through separate BNC type connectors or through distribution buffers/boxes.

## The Image Color Matching File

The .ICM files are data files that are used in conjunction with graphics programs to provide consistent color matching from monitor screen to printer, or from scanner to monitor screen. This file is activated from within graphics programs that support this feature.

 **NOTE:** The ICM color profile is written in accordance with the International Color Consortium (ICC) Profile Format specification.

## Installing the .INF and .ICM Files

After you determine that you need to update, you can install the .INF and .ICM files from the CD or download them.

### Installing from the CD

To install the .INF and .ICM files on the computer from the CD:

1. Insert the CD in the computer CD-ROM drive. The CD menu is displayed.
2. View the **HP Monitor Software Information** file.
3. Select **Install Monitor Driver Software**.
4. Follow the on-screen instructions.
5. Ensure that the proper resolution and refresh rates appear in the Windows Display control panel.



**NOTE:** You may need to install the digitally signed monitor .INF and .ICM files manually from the CD in the event of an installation error. Refer to the HP Monitor Software Information file on the CD.

### Downloading from the Internet

To download the latest version of .INF and .ICM files from the HP monitors support Web site:

1. Refer to <http://www.hp.com/support> and select the country region.
2. Follow the links for the monitor to the support page and download page.
3. Ensure the system meets the requirements.
4. Download the software by following the instructions.

## Using and Adjusting the Monitor

### Using the Auto-Adjustment Function

When first setting up the monitor, when conducting a Factory Reset of the computer, or whenever you change the resolution of the monitor, the Auto-Adjustment feature will automatically engage, and attempt to optimize your screen for you.

You may also optimize the screen performance for the VGA (analog) input at any time by using the **Auto** button on the monitor (see your model's user guide for the specific button name) and the auto-adjustment pattern software utility on the CD provided (select models only).

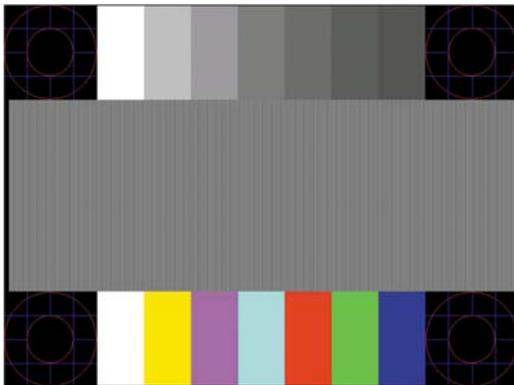
Do not use this procedure if the monitor is using an input other than VGA. If the monitor is using a VGA (analog) input, this procedure can correct the following image quality conditions:

- Fuzzy or unclear focus
- Ghosting, streaking or shadowing effects
- Faint vertical bars
- Thin, horizontal scrolling lines
- An off-center picture

To use the auto-adjustment feature:

1. Allow the monitor to warm up for 20 minutes before adjusting.
2. Press the **Auto** button on the monitor front panel.
  - You can also press the Menu button, then select **Image Control > Auto-Adjustment** from the OSD Main Menu. Refer to [Adjusting the Monitor Settings on page 7](#) in this chapter.
  - If the result is not satisfactory, continue with the procedure.
3. Insert the CD in the disc drive. The CD menu is displayed.
4. Select **Open Auto-Adjustment Software**. The setup test pattern is displayed.
5. Press the **Auto** button on the monitor front panel to produce a stable, centered image.
6. Press the **ESC** key or any other key on the keyboard to exit the test pattern.

**Figure 3-1** Auto-Adjustment Test Pattern



**NOTE:** The auto-adjustment test pattern utility can be downloaded from <http://www.hp.com/support>.

## Adjusting the Monitor Settings

The monitor settings can be adjusted from the On-Screen Display (OSD) menu.



**NOTE:** If there is a problem with the display settings, try resetting the settings to the factory defaults by opening the OSD and selecting **Factory Reset** from the OSD menu.

## Using the On-Screen Display Menu

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

1. If the monitor is not already on, press the **Power** button to turn on the monitor.
2. To access the OSD Menu, press the Menu button on the monitor's front panel.
3. To navigate through the OSD Menu, press the **+** (Plus) button on the monitor's front panel to scroll up, or the **-** (Minus) button to scroll in reverse.
4. To select an item from the OSD Menu, use the **+** or **-** buttons to scroll to and highlight your selection, then press the **OK** button to select that function (the **OK** button may be different on your model).

5. Adjust the item using the + or – buttons on the front panel to adjust the scale.
6. After adjusting the function, select **Save and Return**, or **Cancel** if you don't want to save the setting, then select **Exit** from the Main Menu.

 **NOTE:** If the buttons remain untouched for 10 seconds while displaying a menu, the OSD automatically saves all changes and exits.

The following table lists the OSD Main menu items with a brief descriptions of each item.

**Table 3-1 OSD Main Menu**

Icon	Main Menu	Description
	Brightness	Adjusts the brightness level of the screen. The factory default range is 90.
	Contrast	Adjusts the contrast level of the screen. The factory default range is 80.
	Color	Selects and adjusts the screen color.
	Image Control	Adjusts the screen image. (This menu is only available when using VGA input.)
	OSD Control	Adjusts the on-screen display (OSD) controls.
	Management	Selects the power management, audio, and timer features of the monitor.
	Language	Selects the language in which the OSD menu is displayed. The factory default is English.
	Information	Selects and displays important information about the monitor.
	Factory Reset	Returns all OSD menu settings and DDC/CI controls to the factory default settings, except the Language.
	Input Control	Selects the video input signal. (This menu is only available for models with more than one input.)
	Exit	Exits the OSD menu screen.

## Optimizing Image Performance (Analog Input)

Two controls in the on-screen display can be adjusted to improve image performance: Clock and Phase (available in the main menu).

 **NOTE:** The Clock and Phase controls are adjustable only when using an analog (VGA) input. These controls are not adjustable for digital inputs.

The Clock must first be set correctly since the Phase settings are dependent on the main Clock setting. Use these controls only when the auto-adjustment function does not provide a satisfactory image.

- **Clock**—Increases/decreases the value to minimize any vertical bars or stripes visible on the screen background.
- **Phase**—Increases/decreases the value to minimize video flickering or blurring.



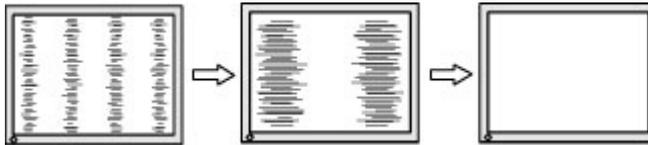
**NOTE:** When using the controls, you will obtain the best results by using the auto-adjustment pattern software utility provided on the CD.

When adjusting the Clock and Phase values, if the monitor images become distorted, continue adjusting the values until the distortion disappears. To restore the factory settings, select **Yes** from the **Factory Reset** menu in the on-screen display.

To eliminate vertical bars (Clock):

1. Press the Menu button on the monitor's front panel to open the OSD Menu, and then select **Image Control > Clock**.
2. Press the + (Plus) or – (Minus) buttons on the monitor's front panel to eliminate vertical bars. Press the buttons slowly so that you do not miss the optimum adjustment point.

**Figure 3-2** Clock Adjustment

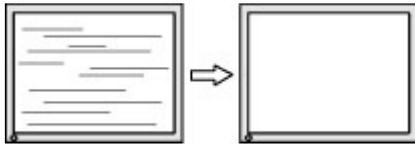


3. After adjusting the Clock, if blurring, flickering, or bars appear on the screen, proceed to adjust the Phase.

To remove flickering or blurring (Phase):

1. Press the Menu button on the monitor's front panel to open the OSD Menu, and then select **Image Control > Phase**.
2. Press the + (Plus) or – (Minus) buttons on the monitor's front panel to eliminate flickering or blurring. Flicking or blurring may not be eliminated depending on your computer or graphics controller card installed.

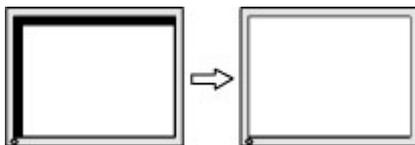
**Figure 3-3** Phase Adjustment



To correct screen position (Horizontal Position or Vertical Position):

1. Press the Menu button on the monitor's front panel to open the OSD Menu, and then select **Image Control > Horizontal Position** and/or **Vertical Position**.
2. Press the + (Plus) or – (Minus) buttons on the monitor's front panel to properly adjust the position of the image in the display area of the monitor. The Horizontal Position shifts the image left or right; the Vertical Position shifts the image up and down.

**Figure 3-4** Horizontal or Vertical Position Adjustment



## Sleep Timer

Sleep Timer is an energy-saving feature that enables you to set a time for the monitor to enter and exit its low-power Sleep mode at the same time every day. For example, you might set the monitor to enter Sleep at the end of the work day every day, and have it wake from Sleep every morning before work. This can result in energy savings, and prevent image retention in the monitor.

The Sleep Timer has five settings:

- Set Current Time
- Set Sleep Time
- Set On Time
- Timer: On/Off
- Sleep Now

To set the timer:

1. Press the Menu button on the monitor front panel to display the **OSD Menu**.
2. Scroll down and highlight **Management**.
3. Press the **OK** button to select **Management**.
4. Scroll down and highlight and select **Sleep Timer > Set Current Time**.



**NOTE:** You must set the current local time before you reset the time for **Sleep Time** or **On Time**. Note that the time is displayed in a 24-hour clock format. For example, 1:15 p.m. is displayed as 13 hours 15 minutes.

A power failure or loss of power to the monitor will cause the timer to reset to 00:00. If this occurs, you will need to reset the sleep timer.

5. Press the **OK** button once to enter the adjustment mode for hours.
6. Press the - (Minus) or + (Plus) button to adjust the hour.
7. Press the **OK** button again to enter the time for minutes.
8. Press the - (Minus) or + (Plus) button to adjust the minutes.
9. Press the **OK** button to lock in the time chosen.
10. After setting the current time, the highlight automatically skips to **Set Sleep Time**. Repeat steps 6 through 9 to set **Sleep Time**.
11. If you do not want to set **Sleep Time**, press the **OK** button twice, then select **Save and Return** to exit the menu.
12. After setting **Sleep Time**, the highlight automatically skips to **Set On Time**. Repeat steps 6 through 9 to set **On Time**.
13. Set the **Timer** to **On** to activate the **Sleep Timer** settings.
14. When you are finished, select **Save and Return** to exit the menu.

The fifth selection, **Sleep Now**, turns the monitor backlights off immediately and stays in sleep mode until the next **On Time** activates or a monitor button is pressed.

## Using the HP Display Assistant or HP MyDisplay Software (select models)

HP display software, included on the software and documentation CD for select models, is a software utility that guides you through the tuning process with easy to understand instructions and background patterns designed for each monitor control. It provides:

- Accurate screen calibration through the use of step-by-step instruction Wizards to obtain the best overall image quality.
- Software control of the monitor image and color settings to eliminate dependence on the monitor's front panel buttons and On-Screen Display (OSD) menu.
- Defined preset display settings for each individual user in a multi-user environment.
- Multiple preset display settings for a single user based on content and ambient lighting.
- Asset Management and Power Management capabilities that include remote control for individual or a group of displays on the domain from a centralized console application.

The HP display software has two modes of operation: Wizard and OSD mode. The preferred method of use is Wizard mode, which takes you through a step-by-step process to accurately calibrate the monitor. This method relies on a sequence of steps that will obtain the best display results when completed.



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**NOTE:** Refer to the user guide for additional information about the software.

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## Identifying Monitor Conditions

Special messages will appear on the monitor screen when identifying the following monitor conditions (some conditions only apply to select models):

- **Monitor Status**—When the monitor is powered on or when the input source signal is changed, a Monitor Status message is displayed for five seconds. The message shows which input is the current active signal, the status of the Auto-Switch Input setting (On or Off), the Default Input signal, the current preset display resolution, and the recommended preset display resolution.
- **Input Signal Out of Range**—Indicates the monitor does not support the input signal because the resolution and/or refresh rate are set higher than the monitor supports (refer to the user guide for your model for supported settings).
- **No Input Signal**—Indicates the monitor is not receiving a video signal from the PC on the monitor video input connector. Check to determine if the PC or input signal source is off or in the power saving mode.
- **Auto-Adjustment in Progress**—Indicates the auto-adjustment function is active.
- **Monitor Going to Sleep**—Indicates the screen display is entering a sleep mode.
- **Check Video Cable**—Indicates the video cable is not properly connected to the computer.
- **Settings Saved as Custom**—Indicates that a Custom setting has been saved in the Quick View sub-menu. This occurs if a preset is selected in the Quick View menu then the Brightness, Contrast, or Color is also changed in the OSD.
- **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** displays for ten 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.

- **Power Button Lockout**—Indicates the power button is locked. If the power button is locked, the warning message **Power Button Lockout** displays.
  - 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.
- **Dynamic Contrast On**—Indicates that Dynamic Contrast Ratio has been turned on. This occurs if Dynamic Contrast Ratio is turned on in the **Image Control** OSD menu.
- **Dynamic Contrast Off**—Indicates that Dynamic Contrast Ratio has been turned off. This occurs if Dynamic Contrast Ratio is turned off in the **Image Control** OSD menu.
- **Theft Mode Enabled**—Indicates that theft deterrence mode has been activated. Theft deterrence is an optional feature that can be set up in HP Display Assistant (available on select models). Theft deterrence mode is triggered if both the power and display cables have been disconnected from the monitor, the monitor is reconnected to a different computer, and the theft deterrence PIN number is not entered within the elapsed time. When the monitor is in theft deterrence mode, all front panel buttons are disabled other than the power button.
- **Speaker Self-Test In Progress**—Indicates the monitor is testing the left and right speakers.

# A Troubleshooting

## Solving Common Problems

The following table lists possible problems, the possible cause of each problem, and the recommended solutions.

Problem	Possible Cause	Solution
Screen is blank.	Power cord is disconnected.	Connect the power cord.
	Power button on front panel of the monitor is turned off.	Press the front panel power button. <b>NOTE:</b> If pressing the power button has no effect, press and hold the power button for 10 seconds to disable the power button lockout feature.
	Video cable is improperly connected.	Connect the video cable properly.
	Screen blanking is active.	Press any key on the keyboard or move the mouse to inactivate the screen blanking utility.
Screen image appears distorted; text is fuzzy or blurred; image quality is degraded.	The computer's graphics card resolution is set lower or higher than the monitor's native resolution.	Set the computer's display resolution to the same mode as the monitor's recommended native screen resolution to provide the best picture quality.
Image appears blurred, indistinct, or too dark.	Brightness and contrast are too low.	Press the <b>OK/Auto</b> button on the front panel. If this does not correct the image, press the <b>Menu</b> button to open the OSD Menu, and adjust the brightness and contrast scales as needed.
Image is not centered	Position may need adjustment.	<ul style="list-style-type: none"><li>From the HP Adjustment Pattern, select <b>Auto</b> to make an adjustment.</li><li>If this does not resolve the problem, verify that <b>Clock</b> and <b>Phase</b> settings are correct. See <a href="#">Optimizing Image Performance (Analog Input) on page 8</a> for more details.</li><li>Once you have determined that <b>Clock</b> and <b>Phase</b> settings are correct, then press the <b>Menu</b> button to access the OSD menu. Select <b>Image Control/Horizontal Position</b> or <b>Vertical Position</b> to adjust the horizontal or vertical position of the image.</li></ul>
<b>Check Video Cable</b> is displayed on screen.	Monitor video cable is disconnected.	Connect the appropriate video cable (DVI or VGA) between the computer and monitor. Be sure that the computer power is off while connecting the video cable.
<b>Input Signal Out of Range</b> is displayed on screen.	Video resolution and/or refresh rate are set higher than what the monitor supports.	Restart the computer and enter <b>Safe Mode</b> . Change the settings to a supported setting (refer to the monitor user guide for supported resolution settings). Restart the computer so that the new settings take effect.

Problem	Possible Cause	Solution
The monitor is off but it did not seem to enter into a low-power sleep mode.	The monitor's power saving control is disabled.	In the monitor's OSD menu, select <b>Management &gt; Power Saver</b> . The control should be set to <b>On</b> to allow the monitor to enter into low-power modes.
<b>OSD Lockout</b> is displayed.	The monitor's OSD Lockout function is enabled.	Press and hold the Menu button for 10 seconds to disable the OSD Lockout function.
<b>Power Button Lockout</b> is displayed.	The monitor's Power Button Lockout function is enabled.	Press and hold the Power button for 10 seconds to unlock the power button function.

## Online Technical Support

If the information provided in this guide or HP Support Assistant does not address your questions, you can contact support. For U.S. support, go to <http://www.hp.com/go/contactHP>. For worldwide support, go to [http://welcome.hp.com/country/us/en/wwcontact\\_us.html](http://welcome.hp.com/country/us/en/wwcontact_us.html).

Here you can:

- Chat online with an HP technician.



**NOTE:** When support chat is not available in a particular language, it is available in English.

- E-mail support.
- Find support telephone numbers.
- Locate an HP service center.

## Preparing to Call Technical Support

If you cannot solve a problem using the troubleshooting tips in this section, you may need to call technical support. Have the following information available when you call:

- Monitor model number
- Monitor serial number
- Purchase date on invoice
- Conditions under which the problem occurred
- Error messages received
- Hardware configuration
- Name and version of the hardware and software you are using

## Locating the Rating Labels

The rating labels on the monitor provide the spare part number, product number, and serial number. You may need these numbers when contacting HP about the monitor model. The rating labels are located on the rear panel of the monitor display head.

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# B 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, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment 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 may 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 may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

For questions regarding the product, contact:

Hewlett Packard Company

P. O. Box 692000, Mail Stop 530113

Houston, Texas 77269-2000

Or, call 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

Or, call (281) 514-3333

To identify this product, refer to 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. CAN ICES-3(B)/NMB-3(B)

## Avis Canadien

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

## European Union Regulatory Notice

Products bearing the CE marking comply with one or more of the following EU Directives as may be applicable:



- Low Voltage Directive 2006/95/EC; EMC Directive 2004/108/EC; Ecodesign Directive 2009/125/EC; R&TTE Directive 1999/5/EC; RoHS Directive 2011/65/EU
- Compliance with these directives is assessed using applicable European Harmonised Standards.
- The full Declaration of Conformity can be found at the following web site: <http://www.hp.eu/certificates>.
- (Search with the product model name or its Regulatory Model Number (RMN), which may be found on the regulatory label.)

The point of contact for regulatory matters is Hewlett-Packard GmbH, Dept./MS:HQ-TRE, Herrenberger Strasse 140, 71034 Boeblingen, GERMANY.

## German Ergonomics Notice

HP products which bear the “GS” approval mark, when forming part of a system comprising HP brand computers, keyboards and monitors that bear the “GS” approval mark, meet the applicable ergonomic requirements. The installation guides included with the products provide configuration information.

## 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 need to obtain a power cord for a different country, you should 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 product's electrical ratings label. The voltage and current rating of the cord should 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 mm<sup>2</sup> or 18 AWG, and the length of the cord must be between 6 feet (1.8 m) and 12 feet (3.6 m). If you have questions about the type of power cord to use, contact an authorized HP service provider.

A power cord should be routed so that it is not likely to be walked on or pinched by items placed upon it or against it. Particular attention should 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

As an ENERGY STAR® Partner, Hewlett Packard Company has followed the EPA's enhanced product qualification and certification process to ensure that the products marked with the ENERGY STAR® logo are ENERGY STAR® qualified per the applicable ENERGY STAR® guidelines for 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 should 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 Web site at <http://www.energystar.gov/powermanagement>.

## Materials Disposal

Some HP LCD monitors contain mercury in the fluorescent lamps that might require special handling at end-of-life.

Disposal of this material can be regulated because of environmental considerations. For disposal or recycling information, contact the local authorities or the Electronic Industries Alliance (EIA) <http://www.eiae.org>.

## 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.

## 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 <http://www.hp.com/recycle>.

## 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 <http://www.hp.com/go/reach>.

## 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 <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](http://www.hp.com/go/jisc0950)を参照してください。

## 有毒有害物质/元素的名称及含量表

根据中国  
《电子信息产品污染控制管理办法》

### 液晶显示器

部件名称	有毒有害物质和元素					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
液晶显示器显示面板	X	X	○	○	○	○
机箱/其它	X	○	○	○	○	○

### CRT 显示器

部件名称	有毒有害物质和元素					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
阴极射线管	X	○	○	○	○	○
机箱/其它	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所用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——“欧洲议会和欧盟理事会 2003 年 1 月 27 日关于电子电器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

## Ukraine Restriction of Hazardous Substances

The equipment complies with requirements of the Technical Regulation, approved by the Resolution of Cabinet of Ministry of Ukraine as of December 3, 2008 No. 1057, in terms of restrictions for the use of certain dangerous substances in electrical and electronic equipment.

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## C LCD Monitor Quality and Pixel Policy

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

- A pixel consists of one red, one green, and one blue sub-pixel.
- 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 sub-pixel (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 should be viewed under normal operating conditions, in normal operating mode at a supported resolution and refresh rate, from a distance of approximately 50 cm (20 in).

HP expects that, over time, the industry will continue to improve its ability to produce LCDs with fewer cosmetic imperfections and HP will adjust guidelines as improvements are made.