User Guide

About This Guide

This guide provides information on monitor features, setting up the monitor, using the software and technical specifications.

WARNING! Indicates a hazardous situation that, if not avoided, could result in death or serious injury.

CAUTION: Indicates a hazardous situation that, if not avoided, could result in minor or moderate injury.

IMPORTANT: Indicates information considered important but not hazard-related (for example, messages related to property damage). Warns the user that failure to follow a procedure exactly as described could result in loss of data or in damage to hardware or software. Also contains essential information to explain a concept or to complete a task.

NOTE: Contains additional information to emphasize or supplement important points of the main text.

TIP: Provides helpful hints for completing a task.

HIGH-DEFINITION MULTIMEDIA INTERFACE

This product incorporates HDMI technology.

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1 Getting Started

Important safety information

An AC 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 Product Notices provided in your documentation kit.

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

- Plug the power cord into an AC outlet that is easily accessible at all times.

- Disconnect power from the computer by unplugging the power cord from the AC outlet.

- If provided with a 3-pin attachment plug on the power cord, plug the cord into a grounded (earthed) 3-pin outlet. Do not disable the power cord grounding pin, for example, by attaching a 2-pin adapter. The grounding pin is an important safety feature.

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.

To reduce the risk of serious injury, read the *Safety & 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.

⚠ **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 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 cannot be pulled, grabbed, or tripped over.

Be sure that the total ampere rating of the products connected to the AC outlet does not exceed the current rating of the outlet, and that 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 AC outlet that you can easily reach. Disconnect the monitor by grasping the plug firmly and pulling it from the AC outlet. Never disconnect the monitor by pulling the cord.

Do not drop the monitor or place it on an unstable surface.

📝 **NOTE:** This product is suitable for entertainment purposes. Consider placing the monitor in a controlled luminous environment to avoid interference from surrounding light and bright surfaces that may cause disturbing reflections from the screen.

Product features and components

Features

The monitors include the following features:

- 43.2 cm (17-inch) diagonal viewable screen area with 1280 x 1024 resolution, plus full-screen support for lower resolutions; includes custom scaling for maximum image size while preserving original aspect ratio

- 49.5 cm (19.5-inch) diagonal viewable screen area with 1600 x 900 resolution, plus full-screen support for lower resolutions; includes custom scaling for maximum image size while preserving original aspect ratio

- Anti-Glare panel with an LED backlight

- Wide viewing angle to allow viewing from a sitting or standing position, or when moving from side to side

- Tilt capability

- VGA video inputs (17-inch model only)

- DisplayPort video inputs (19.5-inch model only)

- HDMI (High-Definition Multimedia Interface) video input (19.5-inch model only)

- Plug-and-play capability if supported by your operating system

- Cable management feature for placement of cables and cords

- On-Screen Display (OSD) adjustments in several languages for easy setup and screen optimization

- HDCP (High-Bandwidth Digital Content Protection) copy protection on all digital inputs (19.5-inch model only)

- Energy saver feature to meet requirements for reduced power consumption

NOTE: For safety and regulatory information, refer to the *Product Notices* provided in your documentation kit. To access the latest user guides or manuals for your product, and the latest versions of HP programs and drivers, go to http://www.hp.com/support and follow the instructions to find your product.

17-inch model Rear connector components

Component		Function
1	Power connector	Connects the power cable to the monitor
2	VGA connector	Connects the VGA cable to the monitor

19.5-inch model Rear connector components

Component		Function
1	Power connector	Connects the power cable to the monitor
2	HDMI connector	Connects the HDMI cable to the monitor
3	DisplayPort connector	Connects the DisplayPort cable to the monitor
4	VGA connector	Connects the VGA cable to the monitor

17-inch model Front bezel controls

Control		Function
1	Menu/Select	Opens the OSD menu or selects items on the OSD menu.
2	Auto Adjustment /Minus	Auto Adjustment: If the OSD menu is inactive, press to do an auto adjustment from a VGA. Minus: If the OSD menu is open, press to navigate backward through the OSD menu and decrease adjustment levels.
3	Viewing Modes / Plus	Viewing Modes: If the OSD menu is inactive, press to activate the Viewing Modes to choose different video settings. Plus: If the OSD menu is open, press to navigate forward through the OSD menu and increase adjustment levels.
4	Brightness /Exit	Brightness: If the OSD menu is inactive, press to activate the Brightness to adjust brightness. Exit: If the OSD menu is open, press to save any changes made, and exit the OSD menu.
5	Power	Turns the monitor on or off.

NOTE: *Buttons 2 to 4 can be assigned a different function by user.*

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

19.5-inch model Back bezel controls

	Control	Function
1	Menu/ Select	Opens the OSD menu or selects items on the OSD menu.
2	Auto Adjustment or Information /Minus	Information or Auto Adjustment: If the OSD menu is inactive, press to show Monitor information OSD under HDMI/DisplayPort source or do auto adjustment under VGA source. Minus: If the OSD menu is open, press to navigate backward through the OSD menu and decrease adjustment levels.
3	Viewing Modes / Plus	Viewing Modes: If the OSD menu is inactive, press to activate the Viewing Modes to choose different video settings. Plus: If the OSD menu is open, press to navigate forward through the OSD menu and increase adjustment levels.
4	Next Active Input/Exit	Next Active Input: If the OSD menu is inactive, press to switch the video signal input under HDMI source. Exit: If the OSD menu is open, press to save any changes made, and exit the OSD menu.
5	Power	Turns the monitor on or off.

NOTE: *Buttons 2 to 4 can be assigned a different function by user.*

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

Setting up the monitor

Installing the monitor stand

⚠️ **CAUTION:** 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.

1. Attach the base with the stand arm by aligning the center holes and pressing downward until you hear a clicking sound indicating that the stand and base are locked.

2. Press the monitor head onto the stand. You will hear a clicking sound when the monitor head and stand are locked into place

Using the Mini PC by HP Desktop Mini Security Dual VESA Sleeve

📝 **NOTE:** If your monitor did not come with a Mini Security Dual VESA Sleeve, this product is available on the HP website.

1. Use a screwdriver to remove the screws from the monitor head's VESA mount.

2. Use the M4xL 10mm screws to mount the VESA sleeve onto the monitor head.

3. Slide the Mini PC into the VESA sleeve until the center holes align.

4. Use the M4xL 10mm screws to secure the VESA sleeve to the Mini PC.

Installing a Mini PC by HP using the Quick Release Kit

1. Use a screwdriver to remove the screws from the monitor head's VESA mount.

2. Use the M4xL12mm screws to attach the quick release kit to the Mini PC.
3. Use the M4xL10mm screws to attach the quick release kit to the monitor head.

4.   Slide the Mini PC into the quick release kit from the top.

Installing the HP Speaker Bar

NOTE: If your monitor did not come with an HP speaker bar, this product is available on the HP website.

1.   Remove a section from the bottom of the monitor head

2. Align the center holes of the speaker bar and the monitor head then press up and slide to the right to attach the speaker bar. You will hear a clicking sound when the speaker bar is locked into place.
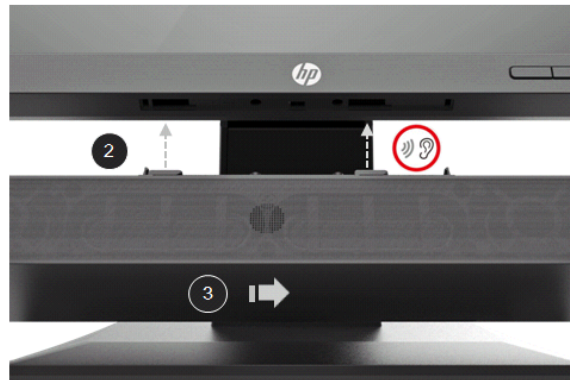
Installing an HP Single Monitor Arm and Mini PC by HP using the Desktop Mini Security Dual VESA Sleeve

NOTE: If your monitor did not come with either an HP Single Monitor Arm or a Mini Security Dual VESA Sleeve, these products are available on the HP website.

1. Use a screwdriver to remove the screws from the monitor head.

2. Press the release button as shown in the graphic below.
3. Pull out the stand to separate from the monitor head.

4. Use the M4xL 10mm screws to attach the VESA sleeve to the monitor head.

5. Slide the Mini PC into the VESA sleeve until the center holes align.

6. Use the Mx4L 10mm screws to attach the single monitor arm with the Mini PC in the VESA sleeve.

Installing the HP Business PC Security Lock V2 Kit

NOTE: If your monitor did not come with an HP Business Security Lock v2 Kit, this product is available on the HP website.

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

Connecting the cables

📝 **NOTE:** The monitor ships with select cables. Not all cables shown in this section are included with the monitor.

1. Place the monitor in a convenient, well-ventilated location near the computer.

2. Connect a video cable.

📝 **NOTE:** The monitor will automatically determine which inputs have valid video signals. The inputs can be selected by pressing the Menu button to access the On-Screen Display (OSD) menu and selecting **Input Control**.

•   Connect one end of a VGA cable to the VGA connector on the rear of the monitor and the other end to the VGA connector on the source device.

- Connect One end of the power cord to the monitor and the other end to a grounded AC outlet.

⚠ **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) AC outlet that is easily accessible at all times.

Disconnect power from the equipment by unplugging the power cord from the AC 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 the power cord from the AC outlet, grasp the cord by the plug.

📝 **NOTE:** Connector locations may vary.

- Connect one end of an HDMI cable to the HDMI connector on the rear of the monitor and the other end to a HDMI connector on the source device. (19.5-inch model only)
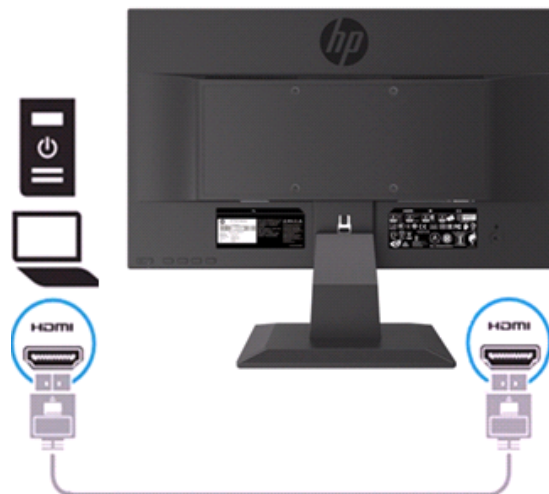
📝 **NOTE:** Use a high-speed HDMI cable. High-speed HDMI cables can handle definitions beyond 1080p. Check the computer environment if you cannot hear audio in HDMI mode. Some computers require you to manually change the default audio output to HDMI.

If you want to use HDMI-PC mode, you must use the OSD to set the input label to PC mode. When HDMI PC is used, a compatibility problem might occur.

- Connect one end of a DisplayPort cable to the DisplayPort connector on the rear of the monitor and the other end to a DP connector on the source device. (19.5-inch model only).
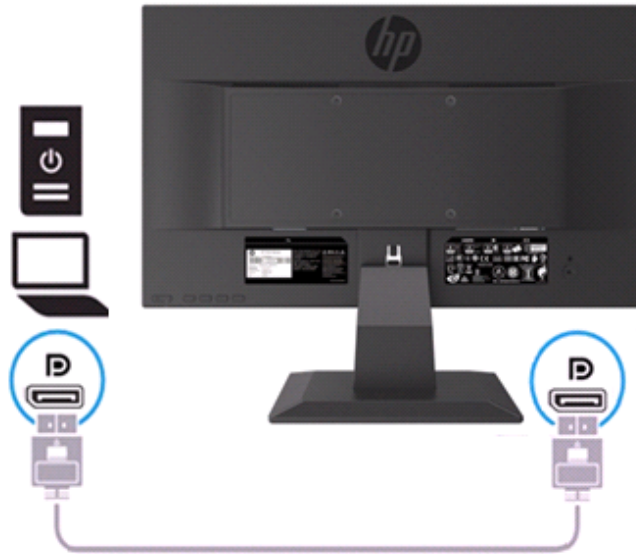
Adjusting the monitor

Tilt the monitor head forward or backward to set it to a comfortable eye level.
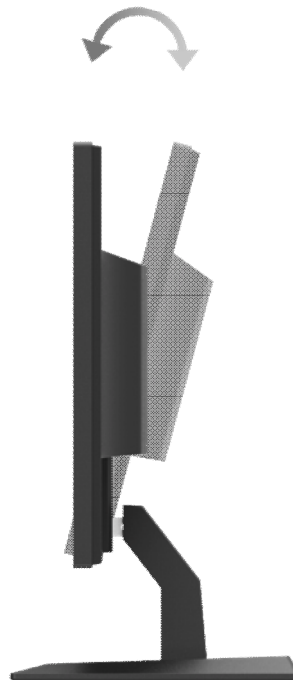
Turning on the monitor

1. Press the Power button on the computer to turn it on.

17-inch model   19.5-inch model

⚠ **CAUTION:** Burn-in image damage may occur on monitors that display the same static image on the screen for 12 or more consecutive hours of nonuse. 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. A "burned-in image" on the monitor is not covered under the HP warranty.

📝 **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 bottom of the monitor, and then select **Power Control > Power LED > Off**.

When the monitor is powered on, 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 source setting (On or Off; default setting is On), the current preset screen resolution, and the recommended preset screen resolution.

The monitor automatically scans the signal inputs for an active input and uses that input for the screen.

HP Watermark and Image Retention Policy

The ADS monitor models are designed with ADS (Advanced Super Dimension Switch) display technology which provides ultra-wide viewing angles and advanced image quality. ADS 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 monitor when the system is idle.

2 Using the Monitor

Downloading the monitor drivers

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

1. Go to http://www.hp.com/support.
2. Select **Get software and drivers**.
3. Follow the on-screen instructions to download the software.

Using the On-Screen Display (OSD) menu

Use the On-Screen Display (OSD) menu to adjust the monitor screen image based on your preferences. You can access and make adjustments in the OSD menu using the buttons on the bottom side of the monitor's front bezel.

To access the OSD menu and make adjustments, 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 one of the Function buttons on the bottom side of the monitor's front bezel to activate the buttons, and then press the Menu button to open the OSD.
3. Use the three Function buttons to navigate, select, and adjust the menu choices. The button labels are variable depending on the menu or submenu that is active.

The following table lists the menu selections in the OSD menu.

Main Menu	Description
Brightness	Adjusts the brightness level of the screen.
Contrast	Adjusts the screen contrast.
Color Control	Selects and adjusts the screen color.
Input Control	Selects the video input signal.
Image Control	Adjusts the screen image.
Power Control	Adjusts the power settings.
Menu Control	Adjusts the on-screen display (OSD) and Function button controls.
Management	Enables/disables DDC/CI support, adjusts the audio settings, and returns all OSD menu settings to the factory default settings.
Language	Selects the language in which the OSD menu is displayed. The factory default is English.
Information	Displays important information about the monitor.
Exit	Exits the OSD menu screen.

Assigning the Function buttons

You can change the Function buttons from their default values so that when the buttons are activated you can quickly access commonly used menu items.

To assign the Function buttons:

1. Press one of the three Function buttons to activate the buttons, and then press the **Menu** button to open the OSD.

2. In the OSD menu, select **Menu Control > Assign Buttons** and then select one of the available options for the button you want to assign.

NOTE: You can reassign only the three Function buttons. You can not reassign the **Menu button or the Power button**.

Adjusting to Low Blue Light Mode

Decreasing the blue light emitting from the monitor reduces the blue light exposure to your eyes. The monitor provides a setting to reduce blue light output and create a more relaxing and less stimulating image while reading content on the screen. To make this adjustment,

- Press the **Menu** button, select **Color Control > Viewing Modes > Low Blue Light**.

Press the check mark button (okay) to Save and Return.

NOTE: To reduce the risk of serious injury, read the *Safety & Comfort Guide* provided with your user guide. It describes proper workstation setup, posture, health, and work habits for computer users. The *Safety & Comfort Guide* also provides important electrical and mechanical safety information. The *Safety & Comfort Guide* also available on the web at http://www.hp.com/ergo.

Using Auto-Sleep Mode

The monitor supports an OSD (On-Screen Display) menu option called **Auto-Sleep Mode** that allows you to enable or disable a reduced power state for the monitor. When Auto-Sleep Mode is enabled (enabled by default), the monitor will enter a reduced power state when the host PC signals low power mode (absence of either horizontal or vertical sync signal).

Upon entering this reduced power state (sleep mode), the monitor screen is blanked, the backlight is turned off and the power LED indicator turns amber. The monitor draws less than 0.5 W of power when in this reduced power state. The monitor will wake from the sleep mode when the host PC sends an active signal to the monitor (for example, if you activate the mouse or keyboard).

You can disable Auto-Sleep Mode in the OSD. Press one of the four Function buttons on the bottom side of the front bezel to activate the buttons, and then press the Menu button to open the OSD. In the OSD menu select **Power Control > Auto-Sleep Mode > Off**.

3   Support and trouble shooting

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 or video is flashing.	Power cord is disconnected.	Connect the power cord.
	Monitor is off.	Press the Power button. **NOTE:** If pressing the Power button has no effect, press and hold the Power button for 10 seconds to dis- able the Power button lockout feature.
	Video cable is improperly connected.	Connect the video cable properly. See Connecting the cables on page 6 for more information.
	System is in sleep mode.	Press any key on the keyboard or move the mouse to exit sleep mode.
	Video card is incompatible.	Open the OSD menu and select the **Input Control** menu. **Set Auto-Switch Input** to **Off** and manually select the input.
Image appears blurred, indistinct, or too dark.	Brightness is too low.	Open the OSD menu and select **Brightness** to adjust the brightness scale as needed.
Check Video Cable is displayed on screen.	Monitor video cable is disconnected.	Connect the appropriate video signal cable between the computer and monitor. Be sure that the computer power is off while you connect the video cable.
Input Signal Out of Range is displayed on screen.	Video resolution and/or refresh rate are set higher than what the monitor supports.	Change the settings to a supported setting. See Preset display resolutions on page 26 for more information.
The monitor is off but it did not seem to enter into sleep mode.	The monitor's power saving control is disabled.	Open the OSD menu and select **Power Control > Auto-Sleep Mode** and set auto-sleep to **On.**
OSD Lockout is displayed.	The monitor's OSD Lockout function is enabled.	Press and hold the Menu button on the bottom side of the front bezel for 10 seconds to disable the OSD Lockout function.
Power Button Lockout is displayed.	The monitor's Power Button Lockout function is enabled.	Press and hold the Power button for 10 seconds to dis- able the Power Button Lockout function.

Using the auto-adjustment function (analog input)

When you first set up the monitor, conduct a Factory Reset of the computer, or change the resolution of the monitor, the Auto-Adjustment feature automatically engages, and attempts 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 (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 Menu button, and then select **Image Control>Auto-Adjustment** from the OSD menu. If the result is not satisfactory, continue with the procedure.

3. Display the auto-adjustment setup test pattern on your screen.

    - Download the auto-adjustment test pattern utility from http://www.hp.com/support and open the Auto-Adjustment utility.

4. Press the **ESC** key or any other key on the keyboard to exit the test pattern.
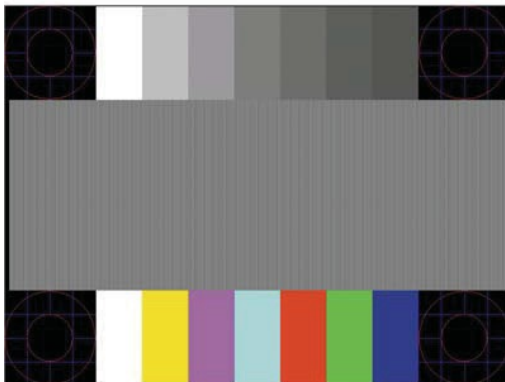
Optimizing image performance (analog input)

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

NOTE: You may need to install the digitally signed monitor .INF and .ICM files in the event of an installation error.

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.

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 bottom of the front bezel to open the OSD menu, and then select **Image Control > Clock and Phase**.

2. Use the Function buttons on the bottom of the monitor front bezel that display up and down arrow icons to eliminate vertical bars. Press the buttons slowly so that you do not miss the optimum adjustment point.

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 bottom of the monitor front bezel to open the OSD menu, and then select **Image Control > Clock and Phase**.

2. Press the Function buttons on the bottom of the monitor front bezel that display up and down arrow icons to eliminate flickering or blurring. Flickering or blurring may not be eliminated, depending on the computer or graphics controller card installed.

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

1. Press the Menu button on the bottom of the front bezel to open the OSD menu, and then select **Image Position**.

2. Press the Function buttons on the bottom of the front bezel that display up and down arrow icons 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.
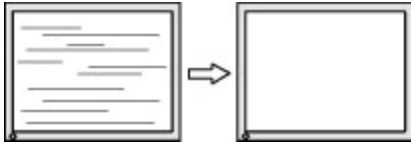
Button lockouts

Holding down the Power button or Menu button for ten seconds will lock out the functionality of that button. You can restore the functionality by holding the button down again for ten seconds. This functionality is only available when the monitor is powered on, displaying an active signal, and the OSD is not active.

Product support

For additional information on using your monitor, go to http://www.hp.com/support. Select **Find your Product**, and then follow the on-screen directions.

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.

- 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 serial number and product number

The serial number and product number are located on a label on the back of the monitor. You may need these numbers when contacting HP about the monitor model.

NOTE: You may need to partially pivot the display head to read the label.

4 Maintaining the monitor

Maintenance guidelines

- 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.

- 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:** A "burned-in image" on the monitor is 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.

- 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 facedown on a soft area to prevent it from getting scratched, defaced, or broken.

Cleaning the monitor

1. Turn off the monitor and disconnect power from the computer by unplugging the power cord from the AC outlet.

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.

Shipping the monitor

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

A   Technical specifications

📝 **NOTE:** The product specifications provided in the user guide might have changed between the time of manufacturing and delivery of your product.

For the latest specifications or additional specifications on this product, go to http://www.hp.com/go/ quick specs/ and search for your specific monitor model to find the model-specific quick specs.

43.2 cm/17–inch model

Display Type	43.2 cm wide screen TN	17-inch wide screen
Viewable Image Size	43.2 cm diagonal	17-inch diagonal
Tilt Adjustment Range	-5° to 25°	
Maximum Weight (Unpacked)	2.6 kg	5.72 lb
Dimensions (include base)		
Height	38.59 cm	15.19 inches
Depth	19.00 cm	7.48 inches
Width	37.48 cm	14.76 inches
Maximum Graphic Resolution	1280 x 1024	
Optimum Graphic Resolution	1280 x 1024	
Environmental Requirements		
Temperature		
Operating Temperature	5 °C to 35°C	41 °F to 95°F
Storage Temperature	-20°C to 60°C	-4 °F to 140° F
Relative Humidity	20%-80%	
Altitude		
Operating	0 m to 5,000 m	0 ft to16,400 ft
storage	0 m to12.192 m	0 ft to 40,000 ft
Power Source	100–240 VAC 50/60 Hz	
Measured power consumption		
Full power	13 w	
Typical setting	12 w	
Sleep	< 0.5 w (after 15 minutes)	
Off	< 0.5 w	
Input Terminal	VGA connector	

Preset display resolutions

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

43.2cm/17-inch model

Preset	Pixel Format Horz	Horz Freq (kHz)	Vert Freq (Hz)
1	640 × 480	31.469	59.940
2	720 × 400	31.469	70.087
3	800 × 600	37.879	60.317

4	1024 × 768	48.363	60.004
5	1280 × 720	45.000	60.000
6	1280 × 800	49.702	59.810
7	1280 × 1024	63.981	60.020

Technical specifications

49.5 cm/19.5–inch model

Display Type	49.5 cm wide screen TN	19.5-inch wide screen
Viewable Image Size	49.5 cm diagonal	19.5-inch diagonal
Tilt Adjustment Range	-5° to 25°	
Maximum Weight (Unpacked) Dimensions (include base)	2.86 kg	6.29 lb
Height	35.36 cm	13.92 inches
Depth	19.00 cm	7.48 inches
Width	46.26 cm	18.21 inches
Maximum Graphic Resolution	1600 x 900	
Optimum Graphic Resolution	1600 x 900	
Environmental Requirements Temperature		
Operating Temperature	5 °C to 35°C	41 °F to 95°F
Storage Temperature	-20°C to 60°C	-4 °F to 140° F
Relative Humidity	20%-80%	
Altitude		
Operating	0 m to 5,000 m	0 ft to16,400 ft
storage	0 m to12.192 m	0 ft to 40,000 ft
Power Source	100–240 VAC 50/60 Hz	
Measured power consumption		
Full power	16 w	
Typical setting	15 w	
Sleep	< 0.5 w (after 15 minutes)	
Off	< 0.5 w	
Input Terminal	VGA connector HDMI connector DisplayPort connector	

Preset display resolutions

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

49.5cm/19.5-inch model

Preset	Pixel Format Horz	Horz Freq (kHz)	Vert Freq (Hz)
1	640 × 480	31.469	59.940

2	720 × 400	31.469	70.087
3	800 × 600	37.879	60.317
4	1024 × 768	48.363	60.004
5	1280 × 720	45.000	60.000
6	1280 × 800	49.702	59.810
7	1280 × 1024	63.981	60.020
8	1366 × 768	48.000	60.000
9	1440 × 900	55.935	59.887
10	1600 × 900	60.000	60.000

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.

It 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, and 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 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 0.5 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).

NOTE: The above power saver feature only works when the monitor is connected to a computer that has energy saver features.

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

B Accessibility

Accessibility

HP is working to weave diversity, inclusion and work/life into the fabric of our company, so it is reflected in everything we do. Here are some examples of how we are putting differences to work to create an inclusive environment focused on connecting people to the power of technology throughout the world.

Finding the technology tools you need

Technology can unleash your human potential. Assistive technology removes barriers and helps you create independence at home, at work, and in the community. Assistive technology helps increase, maintain, and improve the functional capabilities of electronic and information technology. For more information, see Finding the best assistive technology on page 28.

Our commitment

HP is committed to providing products and services that are accessible for people with disabilities. This commitment supports our company's diversity objectives and helps us ensure that the benefits of technology are available to all.

Our accessibility goal is to design, produce, and market products and services that can be effectively used by everyone, including people with disabilities, either on a stand-alone basis or with appropriate assistive devices.

To achieve our goal, this Accessibility Policy establishes seven key objectives to guide our actions as a company. All HP managers and employees are expected to support these objectives and their implementation in accordance with their roles and responsibilities:

- Raise the level of awareness of accessibility issues within our company, and provide our employees with the training they need to design, produce, market, and deliver accessible products and services.

- Develop accessibility guidelines for products and services, and hold product development groups accountable for implementing these guidelines where competitively, technically, and economically feasible.

- Involve people with disabilities in the development of accessibility guidelines, and in the design and testing of products and services.

- Document accessibility features and make information about our products and services publicly available in an accessible form.

- Establish relationships with leading assistive technology and solution providers.

- Support internal and external research and development that will improve assistive technology relevant to our products and services.

- Support and contribute to industry standards and guidelines for accessibility.

International Association of Accessibility Professionals (IAAP)

IAAP is a not-for-profit association focused on advancing the accessibility profession through networking, education, and certification. The objective is to help accessibility professionals develop and advance their careers and to better enable organizations to integrate accessibility into their products and infrastructure.

HP is a founding member, and we joined to participate with other organizations to advance the field of accessibility. This commitment supports our company's accessibility goal of designing, producing, and marketing products and services that can be effectively used by people with disabilities.

IAAP will make our profession strong by globally connecting individuals, students, and organizations to learn from one another. If you are interested in learning more, go to http://www.accessibilityassociation.org to join the online community, sign up for newsletters, and learn about membership options.

Finding the best assistive technology

Everyone, including people with disabilities or age-related limitations, should be able to communicate, express themselves, and connect with the world using technology. HP is committed to increasing accessibility awareness within HP and with our customers and partners. Whether it's large fonts that are easy on the eyes, voice recognition that lets you give your hands a rest, or any other assistive technology to help with your specific situation—a variety of assistive technologies make HP products easier to use. How do you choose?

Assessing your needs

Technology can unleash your potential. Assistive technology removes barriers and helps you create independence at home, at work, and in the community. Assistive technology (AT) helps increase, maintain, and improve the functional capabilities of electronic and information technology.

You may choose from many AT products. Your AT assessment should allow you to evaluate several products, answer your questions, and facilitate your selection of the best solution for your situation. You will find that professionals qualified to do AT assessments come from many fields, including those licensed or certified in physical therapy, occupational therapy, speech/language pathology, and other areas of expertise. Others, while not certified or licensed, may also provide evaluation information. You will want to ask about the individual's experience, expertise, and fees to determine if they are appropriate for your needs.

Accessibility for HP products

The following links provide information on accessibility features and assistive technology, if applicable, included in various HP products. These resources will help you select the specific assistive technology features and product(s) most appropriate for your situation.

- HP Elite x3–Accessibility Options (Windows 10 Mobile)
- HP PCs–Windows 7 Accessibility Options
- HP PCs–Windows 8 Accessibility Options
- HP PC's–Windows 10 Accessibility Options
- HP Slate 7 Tablets–Enabling Accessibility Features on Your HP Tablet (Android 4.1/Jelly Bean)
- HP Slate Book PCs–Enabling Accessibility Features (Android 4.3,4.2/Jelly Bean)
- HP Chrome book PCs–Enabling Accessibility Features on Your HP Chrome book or Chrome box (Chrome OS)
- HP Shopping–peripherals for HP products

If you need additional support with the accessibility features on your HP product, see Contacting support on page 33.

Additional links to external partners and suppliers that may provide additional assistance:

- Microsoft Accessibility information (Windows 7, Windows 8, Windows 10, Microsoft Office)
- Google Products accessibility information (Android, Chrome, Google Apps)
- Assistive Technologies sorted by impairment type
- Assistive Technologies sorted by product type
- Assistive Technology vendors with product descriptions
- Assistive Technology Industry Association (ATIA)

Standards and legislation

Standards

Section 508 of the Federal Acquisition Regulation (FAR) standards was created by the US Access Board to address access to information and communication technology (ICT) for people with physical, sensory, or cognitive disabilities. The standards contain technical criteria specific to various types of technologies, as well as performance-based requirements which focus on functional capabilities of covered products. Specific criteria cover software applications and operating systems, web-based information and applications, computers, telecommunications products, video and multi-media, and self-contained closed products.

Mandate 376 – EN 301 549

The EN 301 549 standard was created by the European Union within Mandate 376 as the basis for an online toolkit for public procurement of ICT products. The standard specifies the functional accessibility requirements applicable to ICT products and services, together with a description of the test procedures and evaluation methodology for each accessibility requirement.

Web Content Accessibility Guidelines (WCAG)

Web Content Accessibility Guidelines (WCAG) from the W3C's Web Accessibility Initiative (WAI) helps web designers and developers create sites that better meet the needs of people with disabilities or age-related limitations. WCAG advances accessibility across the full range of web content (text, images, audio, and video) and web applications. WCAG can be precisely tested, is easy to understand and use, and allows web developers flexibility for innovation. WCAG 2.0 has also been approved as ISO/IEC 40500:2012.

WCAG specifically addresses barriers to accessing the web experienced by people with visual, auditory, physical, cognitive, and neurological disabilities, and by older web users with accessibility needs. WCAG 2.0 provides characteristics of accessible content:

- Perceivable (for instance, by addressing text alternatives for images, captions for audio, adaptability of presentation, and color contrast)
- Operable (by addressing keyboard access, color contrast, timing of input, seizure avoidance, and navigability)
- Understandable (by addressing readability, predictability, and input assistance)
- Robust (for instance, by addressing compatibility with assistive technologies)

Legislation and regulations

Accessibility of IT and information has become an area of increasing legislative importance. This section provides links to information on key legislation, regulations, and standards.

- United States
- Canada
- Europe
- United Kingdom
- Australia
- Worldwide

United States

Section 508 of the Rehabilitation Act specifies that agencies must identify which standards apply to the procurement of ICT, perform market research to determine the availability of accessible products and services, and document the results of their market research. The following resources provide assistance

in meeting Section 508 requirements:

- www.section508.gov
- Buy Accessible

The U.S. Access Board is currently updating the Section 508 standards. This effort will address new technologies and other areas where the standards need to be modified. For more information, go to Section 508 Refresh.

Section 255 of the Telecommunications Act requires telecommunications products and services to be accessible to people with disabilities. FCC rules cover all hardware and software telephone network equipment and telecommunications equipment used in the home or office. Such equipment includes telephones, wireless handsets, fax machines, answering machines, and pagers. FCC rules also cover basic and special telecommunications services, including regular telephone calls, call waiting, speed dialing, call forwarding, computer-provided directory assistance, call monitoring, caller identification, call tracing, and repeat dialing, as well as voice mail and interactive voice response systems that provide callers with menus of choices. For more information, go to Federal Communication Commission Section 255 information.

21st Century Communications and Video Accessibility Act (CVAA)

The CVAA updates federal communications law to increase the access of persons with disabilities to modern communications, updating accessibility laws enacted in the 1980s and 1990s to include new digital, broadband, and mobile innovations. Regulations are enforced by the FCC and documented as 47 CFR Part 14 and Part 79.

- FCC Guide on the CVAA

Other U.S. legislation and initiatives

- Americans with Disabilities Act (ADA), Telecommunications Act, the Rehabilitation Act and others

Canada

The Accessibility for Ontarians with Disabilities Act was established to develop and implement accessibility standards to make goods, services, and facilities accessible to Ontarians with disabilities and to provide for the involvement of persons with disabilities in the development of the accessibility standards. The first standard of the AODA is the customer service standard; however, standards for transportation, employment, and information and communication are also being developed. The AODA applies to the Government of Ontario, the Legislative Assembly, every designated public sector organization, and to every other person or organization that provides goods, services, or facilities to the public or other third parties and that has at least one employee in Ontario; and accessibility measures must be implemented on or before January 1, 2025. For more information, go to Accessibility for Ontarians with Disability Act (AODA).

Europe

EU Mandate 376 ETSI Technical Report ETSI DTR 102 612: "Human Factors (HF); European accessibility requirements for public procurement of products and services in the ICT domain (European Commission Mandate M 376, Phase 1)" has been released.

Background: The three European Standardization Organizations have set up two parallel project teams to carry out the work specified in the European Commission "Mandate 376 to CEN, CENELEC and ETSI, in Support of Accessibility Requirements for Public Procurement of Products and Services in the ICT Domain."

ETSI TC Human Factors Specialist Task Force 333 has developed ETSI DTR 102 612. Further details about the work performed by STF333 (e.g., Terms of Reference, specification of the detailed work tasks, time plan for the work, previous drafts, listing of comments received and means to contact the task force) can be found at the Special Task Force 333.

The parts relating to the assessment of suitable testing and conformity schemes were carried out by a

parallel project, detailed in CEN BT/WG185/PT. For further information, go to the CEN project team website. The two projects are closely coordinated.

- CEN project team
- European Commission mandate for e-accessibility (PDF 46KB)

United Kingdom

The Disability Discrimination Act of 1995 (DDA) was enacted to ensure that websites are accessible to blind and disabled users in the United Kingdom.

- W3C UK Policies

Australia

The Australian government has announced their plan to implement Web Content Accessibility Guidelines 2.0.

All Australian government websites will require Level A compliance by 2012, and Double A by 2015. The new standard replaces WCAG 1.0, which was introduced as a mandated requirement for agencies in 2000.

Worldwide

- JTC1 Special Working Group on Accessibility (SWG-A)
- G3ict: The Global Initiative for Inclusive ICT
- Italian accessibility legislation
- W3C Web Accessibility Initiative (WAI)

Useful accessibility resources and links

The following organizations may be good resources for information about disabilities and age-related limitations.

NOTE: This is not an exhaustive list. These organizations are provided for informational purposes only. HP assumes no responsibility for information or contacts you may encounter on the Internet. Listing on this page does not imply endorsement by HP.

Organizations

- American Association of People with Disabilities (AAPD)
- The Association of Assistive Technology Act Programs (ATAP)
- Hearing Loss Association of America (HLAA)
- Information Technology Technical Assistance and Training Center (ITTATC)
- Lighthouse International
- National Association of the Deaf
- National Federation of the Blind
- Rehabilitation Engineering & Assistive Technology Society of North America (RESNA)
- Telecommunications for the Deaf and Hard of Hearing, Inc. (TDI)
- W3C Web Accessibility Initiative (WAI)

Educational institutions

- California State University, Northridge, Center on Disabilities (CSUN)

- University of Wisconsin - Madison, Trace Center
- University of Minnesota computer accommodations program

Other disability resources

- ADA (Americans with Disabilities Act) Technical Assistance Program
- Business & Disability network
- Enable Mart
- European Disability Forum
- Job Accommodation Network
- Microsoft Enable
- U.S. Department of Justice - A Guide to disability rights Laws

HP links

- Our contact web form
- HP comfort and safety guide
- HP public sector sales

Contacting support

📝 **NOTE:** Support is in English only.

- Customers who are deaf or hard of hearing that have questions about technical support or accessibility of HP products:
  - Use TRS/VRS/Web Cap Tel to call (877) 656-7058 Monday through Friday, 6 a.m. to 9 p.m. Mountain Time
- Customers with other disabilities or age-related limitations who have questions about technical support or accessibility of HP products, choose one of the following options:
  - Call (888) 259-5707 Monday through Friday, 6 a.m. to 9 p.m. Mountain Time.
  - Complete the Contact form for people with disabilities or age-related limitations.
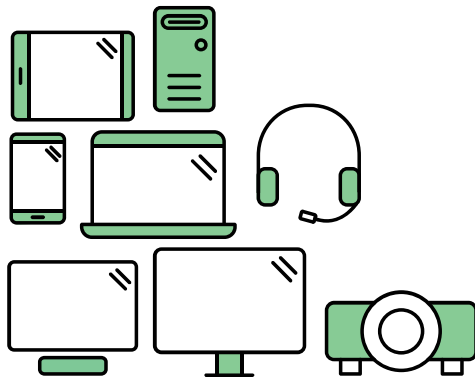
Say hello to a more sustainable product

IT products are associated with a wide range of sustainability risks throughout their life cycle. Human rights violations are common in the factories. Harmful substances are used both in products and their manufacture. Products can often have a short lifespan because of poor ergonomics, low quality and when they are not able to be repaired or upgraded.

This product is a better choice. It meets all the criteria in TCO Certified, the world's most comprehensive sustainability certification for IT products. Thank you for making a responsible product choice, that help drive progress towards a more sustainable future!

Criteria in TCO Certified have a life-cycle perspective and balance environmental and social responsibility. Conformity is verified by independent and approved verifiers that specialize in IT products, social responsibility or other sustainability issues. Verification is done both before and after the certificate is issued, covering the entire validity period. The process also includes ensuring that corrective actions are implemented in all cases of factory non-conformities. And last but not least, to make sure that the certification and independent verification is accurate, both TCO Certified and the verifiers are reviewed regularly.

Want to know more?

Read information about TCO Certified, full criteria documents, news and updates at **tcocertified.com.** On the website you'll also find our Product Finder, which presents a complete, searchable listing of certified products.