User Guide

SUMMARY

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

Product notice

This guide describes features that are common to most models. Some features may not be available on your product. To access the latest user guide, go to http://www.hp.com/support, and follow the instructions to find your product. Then select **Manuals**.

About this guide

This guide provides technical specifications and information about monitor features, setting up the monitor, and using the software. Depending on the model, your monitor may not have all the features included in this guide.

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

⚠ 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.

HDMI™
HIGH-DEFINITION MULTIMEDIA INTERFACE

This product incorporates HDMI technology.

Table of contents

1 Getting started

Read this chapter to learn about safety information and where to find additional HP resources.

Important safety information

An AC adapter and power cord might be included with the monitor. If you use another cord, use only a power source and connection appropriate for this monitor. For information about the correct power cord set to use with the monitor, see 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.

- If the power cord has a three-pin attachment plug, plug the cord into a grounded (earthed) three-pin outlet.

- Disconnect power from the computer by unplugging the power cord from the AC outlet. When unplugging the power cord from the AC outlet, grasp the cord by the plug.

For your safety, do not place anything on power cords or cables. Take care to route all cords and cables connected to the monitor so that they cannot be stepped on, pulled, grabbed, or tripped over.

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

📝 **IMPORTANT:** For the protection of the monitor and the computer, connect all power cords for the computer and its peripheral devices (such as a monitor, printer, scanner) to a surge protection device such as a power strip or uninterruptible power supply (UPS). Not all power strips provide surge protection; the power strip must be specifically labeled as having this capability. Use a power strip whose manufacturer offers a damage replacement policy so that you can replace the equipment if surge protection fails.

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

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

⚠ **WARNING!** **Stability hazard:** The device might fall, causing serious personal injury or death. To prevent injury, securely attach the monitor to the floor or wall in accordance with the installation instructions.

⚠ **WARNING!** This equipment is not suitable for use in locations where children are likely to be present.

📝 **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 might cause disturbing reflections from the screen.

More HP resources

Use this table to locate resources that provide product details, how-to information, and more.

Table 1-1 Additional information

Resource	Contents
Setup Instructions	Overview of monitor setup and features
HP support	For HP support or to resolve a hardware or software problem, go to http://www.hp.com/support, and follow the instructions to find your product.
	– or –
	Type support in the taskbar search box, and then select **HP Support Assistant**. Then select **Support**.
	– or –
	Select the question mark icon in the taskbar search box.
	Then select **Support**.

NOTE: Contact customer support to replace the power cord, the AC adapter (select products only), or any other cables that shipped with your monitor.

Preparing to call technical support

Use this information if you have to troubleshoot an issue.

If you cannot solve a problem using , a call to technical support can provide additional help. 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 that you are using

Getting to know your monitor

Your monitor has top-rated features. This section provides details about your components, where they are located, and how they work.

Features

Depending on the model, your monitor might include the following features:

Display features

- 54.6 cm (21.5 in) diagonal viewable screen area with 1920 × 1080 FHD plus full-screen support for lower resolutions; includes custom scaling for maximum image size while preserving original aspect ratio
- 60.5 (23.8 in) diagonal viewable screen area with 1920 × 1080 FHD plus full-screen support for lower resolutions; includes custom scaling for maximum image size while preserving original aspect ratio

- 68.6 cm (27 in) diagonal viewable screen area with 1920 × 1080 FHD or 2560 × 1440 QHD resolution, plus full-screen support for lower resolutions; includes custom scaling for maximum image size while preserving original aspect ratio

- 80.0 cm (31.5 in) diagonal viewable screen area with 1920 × 1080 FHD resolution, plus full-screen support for lower resolutions; includes custom scaling for maximum image size while preserving original aspect ratio

- Liquid crystal display (LCD) with active matrix and in-plane switching (IPS)

- Wide color gamut to provide coverage of sRGB color spaces

- Nonglare panel with an LED backlight

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

- Tilt adjustment capability

- Four on-screen display (OSD) buttons, three that you can reconfigure to quickly allow selection of the most commonly used operations

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

- Color space presets for sRGB and BT.709

- Energy saver feature to meet requirements for reduced power consumption

- Security cable slot on the rear of the monitor for an optional security cable

- Cable management feature for placement of cables and cords

Connectors

- DisplayPort™ video input (select models)

- High-Definition Multimedia Interface™ (HDMI) video input

- Video Graphics Array (VGA) video input (select models)

- USB Type-C® port (select models)

- USB ports that connect to downstream USB devices (select models)

- Plug and Play capability, if supported by your operating system

Front components

To identify the components on the front of the monitor, use this illustration and table.
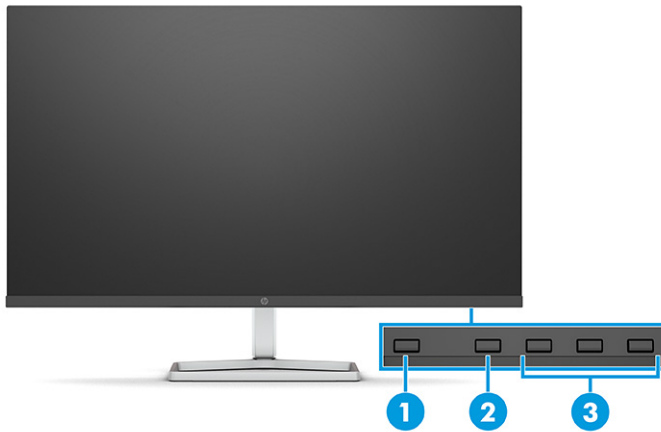
Table 1-2 Front components and their descriptions

	Component	Description
(1)	Power button	Turns the monitor on or off.
(2)	Menu button	Press to open the OSD menu. When the OSD menu is open, the Menu light turns on.
(3)	OSD buttons (assignable)	When the OSD menu is open, press the buttons to navigate through the menu. The function light icons indicate the default button functions. For a description of these functions, see Using the OSD function buttons on page 16.
		You can reassign the function buttons to quickly select the most commonly used operations. See Reassigning the function buttons on page 17.

Rear components 54.6 cm (21.5 in) and 60.5 cm (23.8 in) models

To identify the components on the rear of the 54.6 cm (21.5 in) and 60.5 cm (23.8 in) monitors, use this illustration and table.
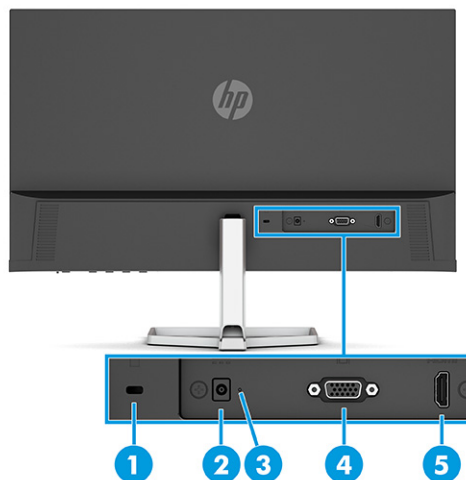
Table 1-3 Rear components and their descriptions

	Component	Description
(1)	Security cable slot	Connects an optional security cable.

Table 1-3 Rear components and their descriptions (continued)

Component		Description
(2)	Power connector	Connects an AC adapter.
(3)	Power light	On: The monitor is on.
		Off: Depending on your monitor model, the monitor is off or in Sleep state.
(4)	VGA connector	Connects the VGA cable to a source device.
(5)	HDMI port	Connects the HDMI cable to a source device such as a computer or game console.

Rear components 68.6 cm (27 in) and 80.0 cm (31.5 in) models

To identify the components on the rear of the monitor, use this illustration and table.

Table 1-4 Rear components and their descriptions

Component		Description
(1)	Security cable slot	Connects an optional security cable.
(2)	Power connector	Connects an AC adapter.
(3)	Power light	On: The monitor is on.
		Off: Depending on your monitor model, the monitor is off or in Sleep state.
(4)	VGA connector	Connects the VGA cable to a source device.
(5)	HDMI ports (2)	Connect the HDMI cable to a source device such as a computer or game console.

Rear components 68.6 cm (27 in) QHD model

To identify the components on the rear of the monitor, use this illustration and table.
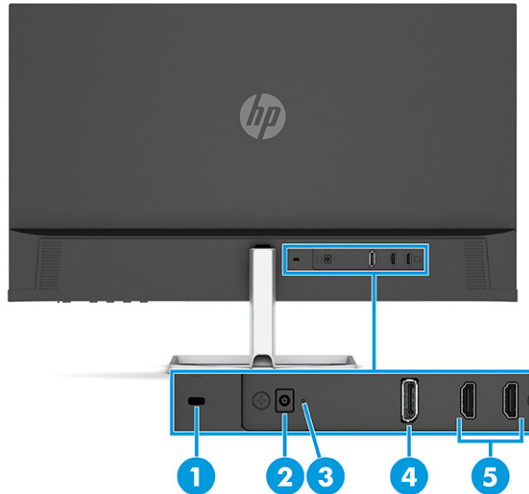
Table 1-5 Rear components and their descriptions

Component		Description
(1)	Security cable slot	Connects an optional security cable.
(2)	Power connector	Connects an AC adapter.
(3)	Power light	On: The monitor is on.
		Off: Depending on your monitor model, the monitor is off or in Sleep state.
(4)	DisplayPort connector	Connects the DisplayPort cable to a source device such as a computer or game console.
(5)	HDMI ports (2)	Connects the HDMI cable to a source device such as a computer or game console.

Rear components 68.6 cm (27 in) USB Type-C model

To identify the components on the rear of the monitor, use this illustration and table.
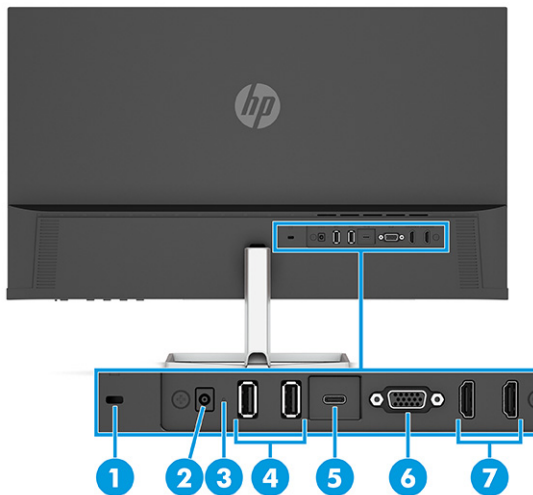
Table 1-6 Rear components and their descriptions
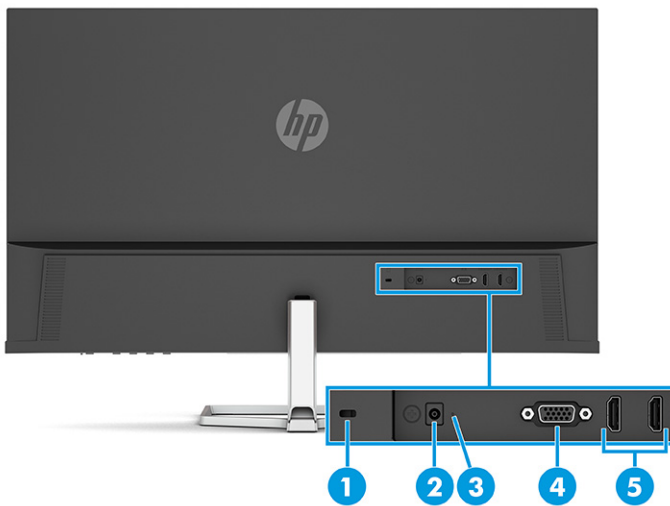
	Component	Description
(1)	Security cable slot	Connects an optional security cable.
(2)	Power connector	Connects an AC adapter.
(3)	Power light	On: The monitor is on.
		Off: Depending on your monitor model, the monitor is off or in Sleep mode.
(4)	USB connectors (2)	Connect USB devices.
		IMPORTANT: If you use a VGA, DisplayPort, or HDMI cable for the video signal, you must also connect a USB Type-C to USB Type-C cable between the monitor and the source device to provide the upstream connection to enable the monitor hubs on the connected host device.
(5)	USB Type-C port	Connects a USB Type-C cable to a source device such as a computer or game console. Provides video display, data transfer, and (for select products) charges small devices when the computer is on or in Sleep state.
(6)	VGA port	Connects the VGA cable to a source device such as a computer or game console.
(7)	HDMI ports (2)	Connect the HDMI cable to a source device such as a computer or game console.

Locating the serial number and product number

Depending on the product, the serial number and product number are located on a label on the rear of the monitor or on a label under the front bezel of the monitor head. You might need these numbers when contacting HP for support.
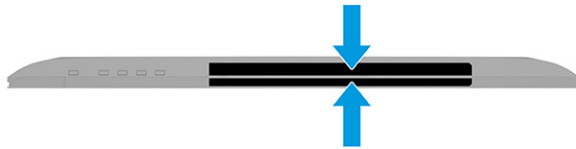
Setting up the monitor

This section describes attaching the monitor stand or wall mount and the options for connecting your monitor to a PC, notebook, gaming console, or similar device.

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

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

IMPORTANT: To prevent the screen from getting scratched, defaced, or broken and to prevent damage to the control buttons, position the monitor facedown on a flat surface covered with protective sheet foam or a nonabrasive cloth.

Attaching the monitor stand

Correctly attaching your monitor stand is critical for safe use. This section describes how to safely attach a stand.

☼ **TIP:** Consider the placement of the monitor, because surrounding light and bright surfaces might cause interfering reflections.

📝 **NOTE:** The procedures for attaching a monitor stand might be different on other models.

1. Position the monitor head facedown on a flat surface covered by protective sheet made of foam or a clean, dry cloth.

2. Insert the stand into the connector on the back of the monitor.

   The latch on the bottom of the mounting plate pops up when the stand is locked in place.
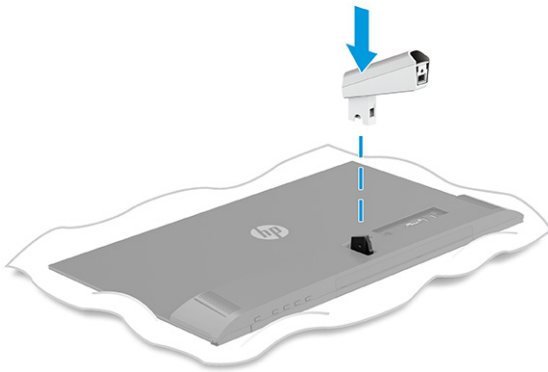
3. Attach the base to the stand **(1)** and tighten the screw **(2)**.
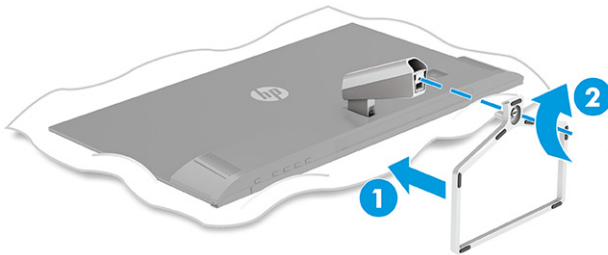
Routing the cables

The monitor stand includes a cable management feature that you can use to organize your monitor cables.

1. Remove the cover from the stand **(1)**.

2. Route any cables that you want to organize through the stand and connect them to the appropriate connectors on the rear of the monitor **(2)**.

3. Replace the cover on the stand **(3)**.
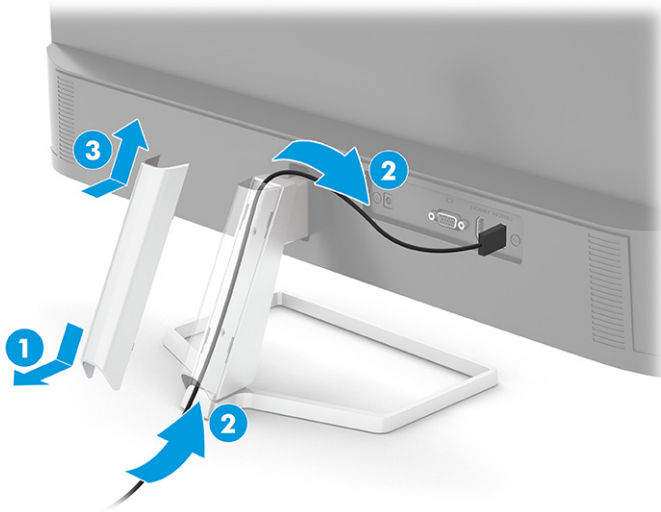
Connecting the cables

In addition to details about how to connect a cable, this section contains information about how your monitor functions when you connect certain cables.

NOTE: Depending on the model, the monitor might be capable of supporting VGA, USB Type-C, HDMI, or DisplayPort inputs. The video mode is determined by the video cable used. The monitor automatically determines which inputs have valid video signals. You can select the inputs through the OSD menu. 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: Except for USB Type-C input, the monitor automatically determines which inputs have valid video signals. You must manually select USB Type-C input. To select any input, including USB Type-C, open the OSD menu and select **Input**.

● Connect one end of a VGA cable to the VGA port on the rear of the monitor and the other end to the VGA port on the source device.
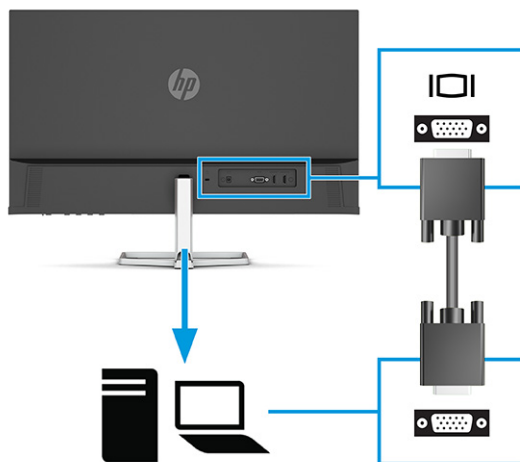
- Connect one end of a DisplayPort cable to the DisplayPort connector on the rear of the monitor and the other end to the DisplayPort connector on the source device.
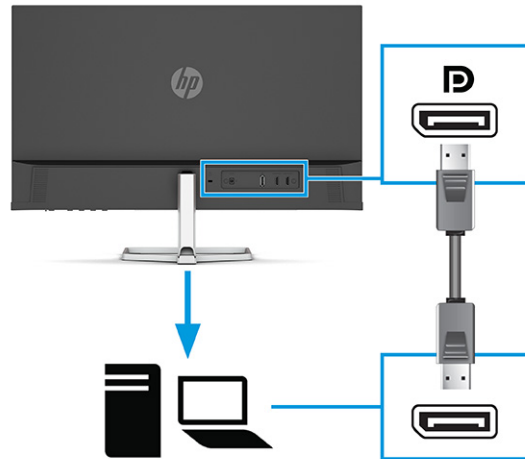
- Connect one end of an HDMI cable to the HDMI port on the rear of the monitor and the other end to the HDMI port on the source device.
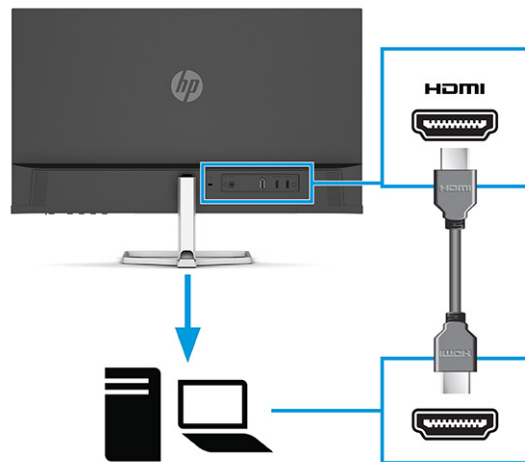
● Connect one end of a USB Type-C cable to the USB Type-C port on the rear of the monitor and the other end to the USB Type-C port on the source device. (Use only the HP-approved USB Type-C cable provided with the monitor.)
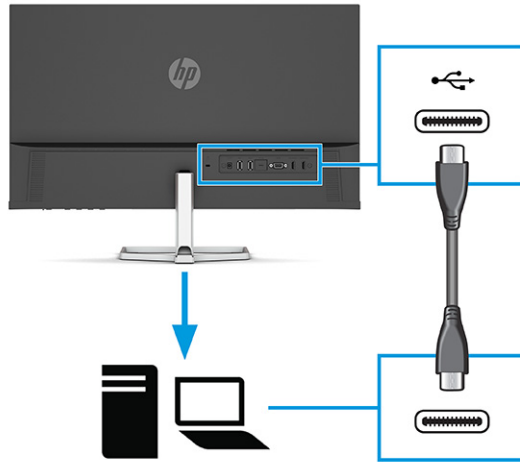
IMPORTANT: The monitor's USB Type-C port provides network, data, video, and power delivery (up to 65 W). If you use a VGA, DisplayPort, or HDMI cable for the video signal, you must also connect a USB Type-C to USB Type-C cable between the monitor and source device. This connection is required to provide the upstream connection to enable the monitor hubs on the connected host device.

3. Connect one end of the power cord to the AC adapter **(1)** and the other end to a grounded AC outlet **(2)**. Then connect the AC adapter to the power connector on the monitor **(3)**.

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 can 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.
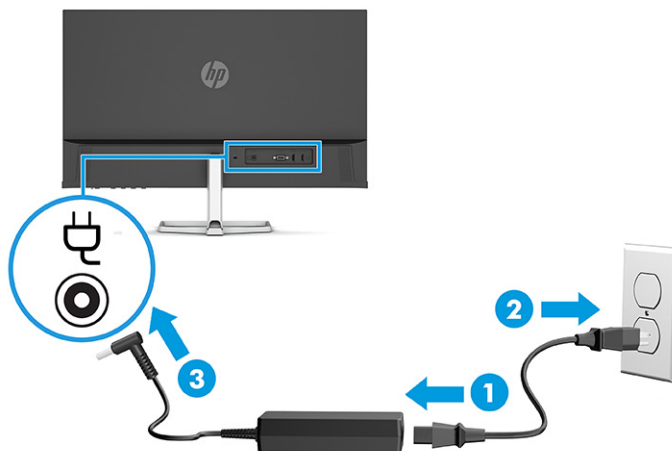
Connecting USB devices (select products only)

Use USB ports to connect devices such as a digital camera, USB keyboard, or USB mouse.
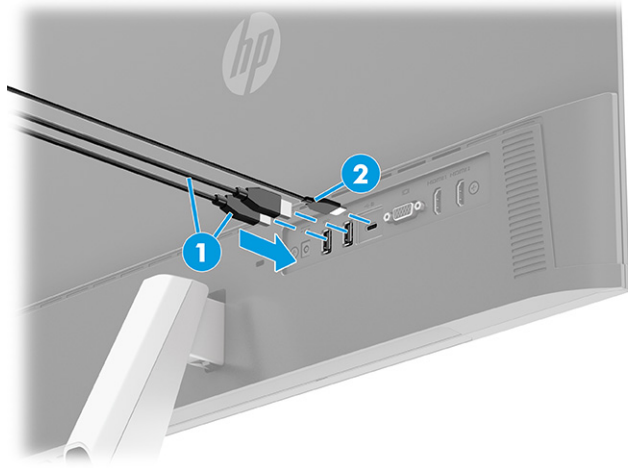
USB port locations

USB Ports	
(1)	USB ports (2)
(2)	USB Type-C port

Adjusting the monitor

To support an ergonomic work space, your monitor offers the adjustment option outlined in this section.

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

▲   Tilt the monitor head forward or backward to set it to a comfortable eye level.
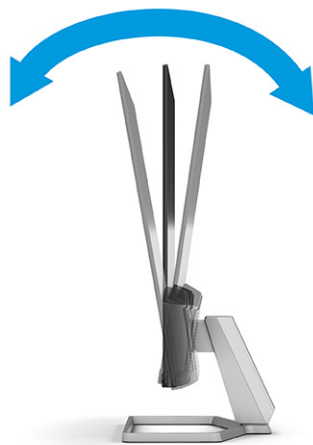
Installing a security cable

As a security measure, you can secure the monitor to a fixed object with an optional security cable that is available from HP. Use the key that came with the optional security cable to attach and remove the lock.
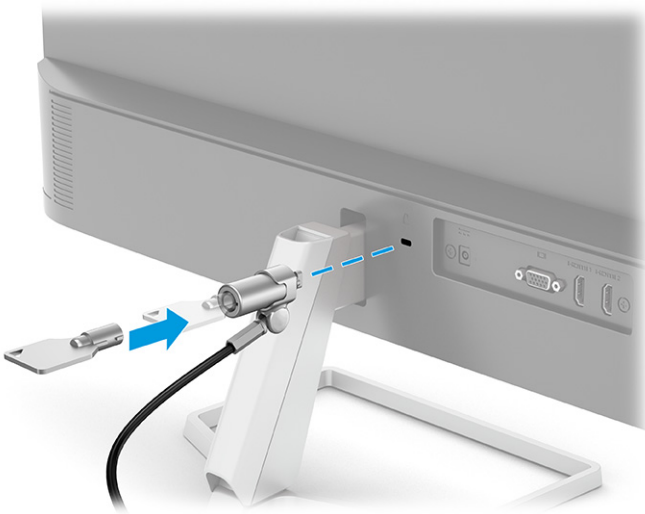
Turning on the monitor

This section provides important information about preventing damage to your monitor, startup indicators, and troubleshooting information.

IMPORTANT: Burn-in image damage might occur on monitors that display the same static image on the screen for 12 or more hours. To avoid burn-in image damage, you should always activate a screen saver application or turn off the monitor when it will not be in use for a prolonged period of time. Image retention is a condition that might occur on all LCD screens. Burn-in damage on the monitor is not covered under the HP warranty.

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

NOTE: On select HP monitors, you can disable the power light in the OSD menu. Press the Menu button to open the OSD, select **Power**, select **Power LED**, and then select **Off**.

▲ Press the power button on the monitor to turn it on.

When you first turn on your monitor, a monitor status message is displayed for 5 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 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.

HP watermark and image retention policy

Some monitors are designed with In-Plane Switching (IPS) display technology, which provides ultrawide viewing angles and advanced image quality. Though suitable for many applications, this panel technology is not suitable for static, stationary, or fixed images for long periods of time, unless you use screen savers.

Applications with static images can include camera surveillance, video games, marketing logos, and templates. Static images can cause image retention damage that could look like stains or watermarks on the monitor's screen.

Image retention damage on monitors that are in use 24 hours per day is 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 computer, to turn off the monitor when the computer is idle.

2   Using the monitor

This chapter describes how to use your monitor and its features, including software and utilities, the OSD menu, the function buttons, power modes, and Windows Hello.

Downloading software and utilities

You can download and install these files from HP Support.

- INF (Information) file
- ICM (Image Color Matching) files

To download the files:

1. Go to http://www.hp.com/support.
2. Select **Software and Drivers**.
3. Select your product type.
4. Enter your HP monitor model in the search field and follow the on-screen instructions.

The Information file

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

This monitor is 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 graphics 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, or both.

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. These files are 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.

Using the OSD menu

You can adjust your HP monitor to suit your preferences. Use the OSD menu to customize the viewing features of your monitor.

To access and make adjustments in the OSD:

- Use the buttons under the bottom of the monitor's front bezel.

To access the OSD menu and make adjustments:

1.	If the monitor is not already on, press the power button to turn on the monitor.

2.	Press the Menu button.

3.	Use the three function buttons to navigate, select, and adjust the menu choices. The on-screen button labels vary, depending on which menu or submenu is active.

The following table lists possible menu selections in the OSD main menu. It includes descriptions for each setting and its impacts on your monitor's appearance or performance.

Table 2-1 OSD menu options and descriptions

Main menu	Description
Brightness+	Adjusts the brightness level of the screen. The factory default is 65.
Color	Selects and adjusts the screen color.
Image	Adjusts the screen image.
Input	Selects the video input signal.
Power	Adjusts the power settings.
Menu	Adjusts the OSD menu and selects the language in which the OSD menu is displayed (the factory default is English).
Management	Adjusts the DDC/CI settings and returns all OSD menu settings to the factory default settings.
Information	Provides information about the monitor, such as optimal display mode, power mode, and serial number.
Exit	Exits the OSD menu screen.

Using the OSD function buttons

The function buttons offer useful actions, and you can customize all but one of them to make them even more useful.

📝 NOTE:	The actions of the function buttons vary among monitor models.

For information about changing the function of the buttons, see Reassigning the function buttons on page 17.
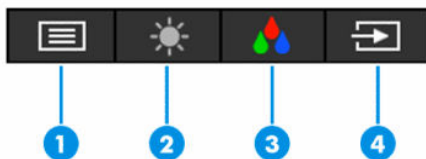
Table 2-2 Button names and descriptions

Button		Description
(1)	Menu button	Opens the OSD main menu, selects a menu item from the OSD, or closes the OSD menu.
(2)	Brightness button Assignable function button	Adjusts the monitor screen brightness.
(3)	Color button	Opens the Viewing Modes menu where you can adjust the monitor screen to a comfortable viewing light or select a preset view mode.

Table 2-2 Button names and descriptions (continued)

Button		Description
	Assignable function button	
(4)	Next input button	Switches the monitor's input source to the next active input.
	Assignable function button	

Reassigning the function buttons

Except for the **Menu** button, you can change the action associated with a function button from the default action that you can quickly access your most commonly used menu items.

To reassign the function buttons:

1. Press the Menu button to open the OSD menu.

2. Select **Menu**, select **Assign Buttons**, and then select one of the available options for the button that you want to assign.

Changing the Power Mode setting (select products only)

This section describes how to activate Performance mode. Certain features on your monitor might require Performance mode to be active.

When in Sleep state, to comply with international power standards, the monitor default setting is Power Saver mode.

If your monitor supports Performance mode, then to keep the USB ports enabled when the monitor is in Auto-Sleep Mode, change the Power Mode setting from **Power Saver** to **Performance**.

NOTE: If you are connecting a computer that is not battery powered, the Power Mode setting must be changed to Performance mode.

To change the power mode setting:

1. Press the Menu button to open the OSD menu.

2. Select **Power**, select **Power Mode**, and then select **Performance**.

3. Select **Back** and close the OSD.

Using Auto-Sleep Mode (select products only)

Your monitor has an energy-saving feature called Auto-Sleep Mode, a reduced power state. This section describes how to activate or adjust Auto-Sleep Mode on your monitor.

When Auto-Sleep Mode is enabled (enabled by default), the monitor enters a reduced power state when the computer signals low power mode (absence of either horizontal or vertical sync signal).

Upon entering this reduced power state (Auto-Sleep Mode), the monitor screen is blanked, the backlight turns off, and the power light turns amber. The monitor draws less than 0.5 W of power when in this reduced power state. The monitor wakes from Auto-Sleep mode when the computer sends an active signal to the monitor (for example, when you activate the mouse or keyboard).

To disable Auto-Sleep Mode in the OSD:

1. Press the Menu button to open the OSD, or press the center of the OSD controller to open the OSD.

2. In the OSD, select **Power**.

3. Select **Auto-Sleep Mode**, and then select **Off**.

Setting up Windows Hello facial recognition (select products only)

In select products, you can use Windows Hello facial recognition to gain quick, secure access to your computer. You can establish facial recognition by using either the camera on your computer or the camera on your monitor (select models).

NOTE: Windows Hello is only supported on the Windows 10 operating system.

Using Windows Hello (select products only)

Even if your computer does not have a Windows Hello camera, you can still set up Windows Hello facial recognition using the IR camera on your monitor (select models).

1. Select the **Start** button, select **Settings**, select **Accounts**, and then select **Sign-in options**.

2. Under **Windows Hello**, select **Set up** under **Face Recognition**.

3. Under **Welcome to Windows Hello**, select **Get Started**, and then follow the on-screen instructions to enroll your facial ID and set up a PIN.

You can now use the IR camera on the monitor to log in when using Windows Hello.

3   Support and troubleshooting

If your monitor is not working as expected, you might be able to resolve the issue by following the instructions in this section.

Solving common issues

The following table lists possible issues, the possible cause of each issue, and the recommended solutions.

Table 3-1 Common issues and solutions

Issues	Possible cause	Solution
USB ports are not working.	A USB Type-C to USB Type-C cable is not connected between the monitor and the source device.	If you use a VGA, DisplayPort, or HDMI cable for the video signal, you must also connect a USB Type-C to USB Type-C cable between the monitor and the source device to provide the upstream connection to enable the monitor hubs on the connected host device.
Screen is blank or video is blinking.	Power cord is disconnected.	Connect the power cord.
	Monitor is off.	Press the monitor power button. **NOTE:** If pressing the power button has no effect, press and hold the power button for 10 sec to disable the Power Button Lockout feature.
	Video cable is improperly connected.	Connect the video cable properly. For more information, see Connecting the cables on page 9.
	System is in Auto-Sleep Mode.	Press any key on the keyboard or move the mouse to inactivate the screen blanking utility.
	Video card is incompatible.	Open the OSD menu and select the **Input** menu. Set **Auto-Switch Input** to **Off** and manually select the input. or Replace the video card or connect the video cable to one of the computer's on-board video sources.
Image appears blurred, indistinct, or too dark.	Brightness setting is too low.	Open the OSD menu, and select **Brightness+** to adjust the brightness scale as needed.
"Check Video Cable" is displayed on the 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 connecting the video cable.
"Input Signal Out of Range" is displayed on screen.	Video resolution and/or refresh rate are set higher than the monitor supports.	Change the settings to a supported setting (see Preset display resolutions on page 27).
The monitor does not enter into a low-power sleep state.	The monitor's power saving control is disabled.	Open the OSD menu and select **Power**, select **Auto-Sleep Mode**, and then set auto-sleep to **On**.
"OSD Lockout" 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.
"Power Button Lockout" is displayed.	The monitor's Power Button Lockout feature is enabled.	Press and hold the Power button for 10 seconds to unlock the power button function.

Button lockouts

The button lockout function is available only when the monitor is on, an active signal is displayed, and the OSD menu is closed. Holding down the power button or Menu button for 10 seconds disables that button. You can re-enable the button by holding it down again for 10 seconds.

Using the auto-adjustment function (analog input)

The auto-adjustment feature automatically engages and attempts to optimize your screen under several conditions.

- Monitor setup

- Factory reset of the computer

- Changing monitor resolution

You can manually optimize the screen performance for the VGA (analog) input at any time from the Auto Adjustment menu in the OSD. You can download the auto-adjustment pattern software utility from http://www.hp.com/support.

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. Turn the monitor on, and then wait for 20 minutes before adjusting.

2. Press the Menu button to open the OSD menu, select **Image**, and then select **Auto Adjustment**. If the result is not satisfactory, continue with the procedure.

3. Open the auto-adjustment utility. (You can download this utility from http://www.hp.com/support.) The setup test pattern is displayed.
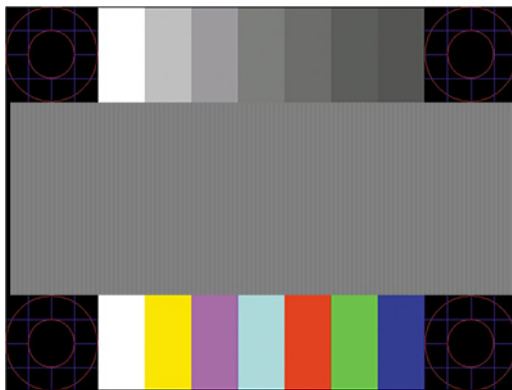
4. Press the esc key or any other key on the keyboard to exit the test pattern.

Optimizing image performance (analog input)

If you would like to customize your settings, this section describes how to manually optimize your monitor's image.

You can adjust two controls in the on-screen display to improve image performance: Clock and Phase (available in the OSD menu). Use these controls only when the auto-adjustment function does not provide a satisfactory image.

NOTE: You can adjust the Clock and Phase controls only when you use an analog (VGA) input. These controls are not adjustable for digital inputs.

The Clock must first be set correctly because the Phase settings are dependent on the main Clock setting.

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

- **Phase**—Increases or decreases the value to minimize video flickering or blurring.

NOTE: When you use the controls, you will obtain the best results by using the auto-adjustment pattern software utility. You can download this utility from http://www.hp.com/support.

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, press the Menu button to open the OSD menu, then select **Management**, select **Factory Reset**, and select **Yes**.

To eliminate vertical bars (Clock):

1. Press the Menu button to open the OSD menu, select **Image**, and then select **Clock and Phase**.

2. Select **Clock**, and then use the OSD buttons on the monitor 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.
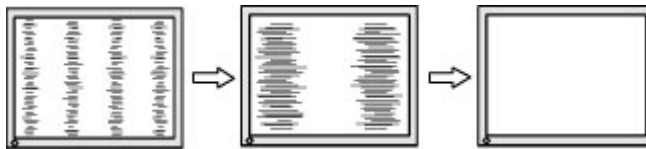
3. After adjusting the Clock, if flickering, blurring, or bars appear on the screen, proceed to adjust the Phase.

To remove flickering or blurring (Phase):

1. Press the Menu button to open the OSD menu, select **Image**, and then select **Clock and Phase**.

2. Select **Phase**, and then use the OSD buttons on the monitor that display up and down arrow icons to eliminate flickering or blurring. Flickering or blurring might 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 to open the OSD menu, select **Image**, and then select **Image Position**.

2. Press the OSD buttons on the monitor 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 or down.
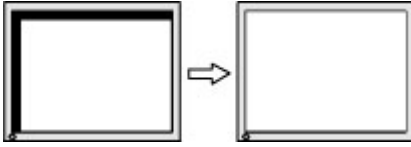
4 Maintaining the monitor

Properly maintained, your monitor can run for many years. These instructions provide steps you can perform to keep your monitor in the best condition.

Maintenance guidelines

Follow these instructions 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 or back plate of the monitor.

- Be sure that the total ampere rating of the products connected to the outlet does not exceed the current rating of the AC 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 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 it is not in use, and use a screen saver program. Doing this can substantially increase the life expectancy of the monitor.

  NOTE: A burned-in image on the monitor is not covered under the HP warranty.

- Never block the slots and openings of the cabinet or push objects into them. These openings provide ventilation.

- 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.

Cleaning the monitor

Use these instructions to clean your monitor when necessary.

1. Turn off the monitor and unplug the power cord from the AC outlet.

2. Disconnect any external devices.

3. Dust the monitor by wiping the screen and the cabinet with a soft, clean antistatic cloth.

4. For more difficult cleaning situations, use a 50/50 mix of water and isopropyl alcohol.

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

IMPORTANT: 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 can run behind the bezel and damage the electronics. The cloth should be moist, but not wet. Water dripping into the ventilation openings or other points of entry can cause damage to the monitor. Allow the monitor to air-dry before use.

5. After you remove the dirt and debris, you can also clean the surfaces with a disinfectant. The World Health Organization (WHO) recommends cleaning surfaces, followed by disinfection, as a best practice for preventing the spread of viral respiratory illnesses and harmful bacteria. A disinfectant that is within HP's cleaning guidelines is an alcohol solution consisting of 70% isopropyl alcohol and 30% water. This solution is also known as rubbing alcohol and is sold in most stores.

Shipping the monitor

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

A   Technical specifications

This section contains technical specifications for the physical aspects of your monitor, such as the weight and viewing dimensions, as well as required environmental operating conditions and power source ranges.

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

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

Technical specifications 54.6 cm (21.5 in) model

This section provides specifications for your monitor.

Table A-1 Technical specifications

Specification	Measurement	
Display, widescreen	**54.6 cm**	21.5 in
Type	IPS/AHVA	
Viewable image size	**54.6 cm diagonal**	21.5 in diagonal
Maximum weight (unpacked without stand)	**1.80 kg**	3.96 lbs
Dimensions		
Height	**28.72 cm**	11.31 in
Depth	**3.18 cm**	1.25 in
Width	**48.55 cm**	19.11 in
Tilt	**−5° to 25°**	
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
Storage humidity	5% to 95% (noncondensing)	
Power source	100-240 VAC 50/60 Hz	
Input terminal	One HDMI port, one VGA port	

Technical specifications 60.5 cm (23.8 in) model

This section provides specifications for your monitor.

Table A-2 Technical specifications

Specification	Measurement	
Display, widescreen	60.5 cm	23.8 in
Type	IPS/AHVA	
Viewable image size	60.5 cm diagonal	23.8 in diagonal
Maximum weight (unpacked without stand)	2.20 kg	4.85 lbs
Dimensions		
Height	31.55 cm	12.42 in
Depth	3.38 cm	1.33 in
Width	53.58 cm	21.09 in
Tilt	−5° to 25°	
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
Storage humidity	5% to 95% (noncondensing)	
Power source	100–240 VAC 50/60 Hz	
Input terminal	One HDMI port, one VGA port	

Technical specifications 68.6 cm (27 in) model

This section provides specifications for your monitor.

Table A-3 Technical specifications

Specification	Measurement	
Display, widescreen	68.6 cm	27.0 in
Type	IPS/AHVA	
Viewable image size	68.6 cm diagonal	27.0 in diagonal
Maximum weight (unpacked without stand)	2.90 kg	6.39 lbs
Dimensions		
Height	35.60 cm	14.01 in
Depth	3.42 cm	1.35 in
Width	60.79 cm	23.93 in
Tilt	−5° to 25°	
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

Specification	Measurement
Storage humidity	5% to 95% (noncondensing)
Power source	100–240 VAC 50/60 Hz
Input terminal	Two HDMI ports and one VGA port (select models)
	Two HDMI ports and one DisplayPort connector (select models)
	One USB Type-C port, two downstream USB ports, two HDMI ports, and one VGA port (select models)

Technical specifications 80.0 cm (31.5 in) model

This section provides specifications for your monitor.

Table A-4 Technical specifications

Specification	Measurement	
Display, widescreen	80.0 cm	31.5 in
Type	VA	
Viewable image size	80.0 cm diagonal	31.5 in diagonal
Maximum weight (unpacked without stand)	4.6 kg	10.14 lbs
Dimensions		
Height	41.46 cm	16.32 in
Depth	4.02 cm	1.58 in
Width	71.03 cm	27.96 in
Tilt	−5° to 25°	
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
Storage humidity	5% to 95% (noncondensing)	
Power source	100–240 VAC 50/60 Hz	
Input terminal	Two HDMI ports and one VGA port	

Preset display resolutions

The following display resolutions 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.

FHD Preset display and timing resolutions

This section provides preset display resolutions and preset timing resolutions for FHD monitor models.

Table A-5 Preset display resolutions

Preset	Pixel format	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	1440 × 900	55.935	59.887
9	1600 × 900	60.000	60.000
10	1680 × 1050	65.290	59.954
11	1920 × 1080	67.500	60.000
12	1920 × 1080	83.894	75.000

Table A-6 Preset timing resolutions

Preset	Timing name	Pixel format	Horz freq (kHz)	Vert freq (Hz)
1	480p60	640 × 480	31.469	60
2	480p60	720 × 480	31.469	60
3	576p50	720 × 576	31.250	50
4	720p50	1280 × 720	37.500	50
5	720p60	1280 × 720	45.000	60
6	1080p50	1920 × 1080	56.250	50
7	1080p60	1920 × 1080	67.500	60

QHD Preset display and timing resolutions

This section provides preset display resolutions and preset timing resolutions for QHD monitor models.

Table A-7 Preset display resolutions

Preset	Pixel format	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

Preset	Pixel format	Horz freq (kHz)	Vert freq (Hz)
6	1280 × 800	49.702	59.810
7	1280 × 1024	63.981	60.020
8	1440 × 900	55.935	59.887
9	1600 × 900	60.000	60.000
10	1680 × 1050	65.290	59.954
11	1920 × 1080	67.500	60.000
12	1920 × 1200	74.038	59.950
13	2560 × 1440	88.787	59.951

Table A-8 Preset timing resolutions

Preset	Timing name	Pixel format	Horz freq (kHz)	Vert freq (Hz)
1	480p60	640 × 480	31.469	60
2	480p60	720 × 480	31.469	60
3	576p50	720 × 576	31.250	50
4	720p50	1280 × 720	37.500	50
5	720p60	1280 × 720	45.000	60
6	1080p24	1920 × 1080	27.000	24
7	1080p25	1920 × 1080	27.284	25
8	1080p30	1920 × 1080	33.750	30
9	1080p50	1920 × 1080	56.250	50
10	1080p60	1920 × 1080	67.500	60
11	1080p75	1920 × 1080	83.894	75
12	1440p60	2560 × 1440	88.787	60

Power supply specifications

This section provides power supply specifications.

Table A-9 Power supply specifications

Manufacturer	Model number	Power supply rating
Honor	ADS-25PE-19-3 19525E	25 W
Honor	ADS-45PE-19-3 19540E	40 W
Delta	TPN-DA11/ADP-135MB BA	45 W
Delta	TPN-DA16/ADP-45FE FA	135 W

Energy saver feature

This monitor supports a reduced power state.

The reduced power state is initiated 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 blank, the backlight is turned off, and the power light turns amber. In the reduced power state, the monitor uses < 0.5 W of power. There is a brief warm-up period before the monitor returns to its normal operating state.

See the computer manual for instructions on setting the energy saver mode (sometimes called "power management feature").

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

By selecting the settings in the monitor Sleep Timer utility, you can also program the monitor to initiate the reduced power state at a predetermined time. When the monitor Sleep Timer utility initiates the reduced power state, the power light blinks amber.

B   Accessibility

HP's goal is to design, produce, and market products, services, and information that everyone everywhere can use, either on a stand-alone basis or with appropriate third-party assistive technology (AT) devices or applications.

HP and accessibility

Because HP works to weave diversity, inclusion, and work/life into the fabric of the company, it is reflected in everything HP does. HP strives 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 .

The HP commitment

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

The HP 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 that goal, this Accessibility Policy establishes seven key objectives to guide HP actions. 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 HP, and provide 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 HP 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 improves assistive technology relevant to HP 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.

As a founding member, HP joined to participate with other organizations to advance the field of accessibility. This commitment supports HP's accessibility goal of designing, producing, and marketing products and services that people with disabilities can effectively use.

IAAP will make the 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 can 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, can 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

These links provide information about accessibility features and assistive technology, if applicable, included in various HP products. These resources will help you select the specific assistive technology features and products most appropriate for your situation.

- HP Aging & Accessibility: Go to http://www.hp.com, type `Accessibility` in the search box. Select **Office of Aging and Accessibility**.

- HP computers: For Windows 7, Windows 8, and Windows 10, go to http://www.hp.com/support, type `Windows Accessibility Options` in the **Search our knowledge** search box. Select the appropriate operating system in the results.

- HP Shopping, peripherals for HP products: Go to http://store.hp.com, select **Shop**, and then select **Monitors** or **Accessories**.

If you need additional support with the accessibility features on your HP product, see Contacting support on page 35.

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)

Standards and legislation

Countries worldwide are enacting regulations to improve access to products and services for persons with disabilities. These regulations are historically applicable to telecommunications products and services, PCs and printers with certain communications and video playback features, their associated user documentation, and their customer support.

Standards

The US Access Board created Section 508 of the Federal Acquisition Regulation (FAR) standards 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 multimedia, and self-contained closed products.

Mandate 376 – EN 301 549

The European Union created the EN 301 549 standard within Mandate 376 as an online toolkit for public procurement of ICT products. The standard specifies the accessibility requirements applicable to ICT products and services, with a description of the test procedures and evaluation methodology for each 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. These links provide information about key legislation, regulations, and standards.

- United States

- Canada

- Europe

- Australia

Useful accessibility resources and links

These organizations, institutions, and resources might be good sources of 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 encounter on the internet. Listing on this page does not imply endorsement by HP.

Organizations

These organizations are a few of the many that provide information about disabilities and age-related limitations.

- 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

Many educational institutions, including these examples, provide information about disabilities and age-related limitations.

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

- University of Wisconsin - Madison, Trace Center

- University of Minnesota computer accommodations program

Other disability resources

Many resources, including these examples, provide information about disabilities and age-related limitations.

- ADA (Americans with Disabilities Act) Technical Assistance Program

- ILO Global Business and Disability network

- EnableMart

- European Disability Forum
- Job Accommodation Network
- Microsoft Enable

HP links

These HP-specific links provide information that relates to disabilities and age-related limitations.

HP comfort and safety guide

HP public sector sales

Contacting support

HP offers technical support and assistance with accessibility options for customers with disabilities.

NOTE: Support is in English only.

- Customers who are deaf or hard of hearing who have questions about technical support or accessibility of HP products:
  - Use TRS/VRS/WebCapTel 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.

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