



User Guide

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About This Guide

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

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

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


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

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1 Product Features

These monitor models have an active matrix, thin-film transistor (TFT) panel. Features of the monitors include:

- 49.41-cm (19.5-inch) diagonal viewable area display with 1600 x 900 resolution, plus full-screen support for lower resolutions; includes custom scaling for maximum image size while preserving original aspect ratio
- 58.42-cm (23-inch) diagonal viewable area display with 1920 x 1080 resolution, plus full-screen support for lower resolutions; includes custom scaling for maximum image size while preserving original aspect ratio
- Non-glare LCD panel with an LED backlight that consumes less energy
- Wide viewing angle to allow viewing from a sitting or standing position, or moving from side-to-side
- Tilt capability
- Removable stand for flexible monitor panel mounting solutions
- Video signal input to support VGA analog with VGA signal cable provided
- Video signal input to support DVI digital with DVI-D signal cable provided
- Supports optional HP Speaker Bar, HP Quick Release, and HP USB Graphics Adapter (separately purchased)
- Plug-and-play capability if supported by the operating system
- Privacy filter slots (on select models) to insert filters (separately purchased) to block side screen viewing
- Security slot provision on rear of monitor for optional cable lock
- Cable management feature for placement of cables and cords
- On-Screen Display (OSD) adjustments in several languages for easy setup and screen optimization
- HP Display Assistant for adjusting monitor settings and enabling the theft deterrence feature
- HDCP copy protection on DVI input
- Software and documentation disc that includes monitor drivers and product documentation

- Energy saver feature to meet requirements for reduced power consumption
- Safety guidelines, certifications, and regulatory notices for these products are available in the *HP LCD Monitors Reference Guide* on the disc included with this monitor

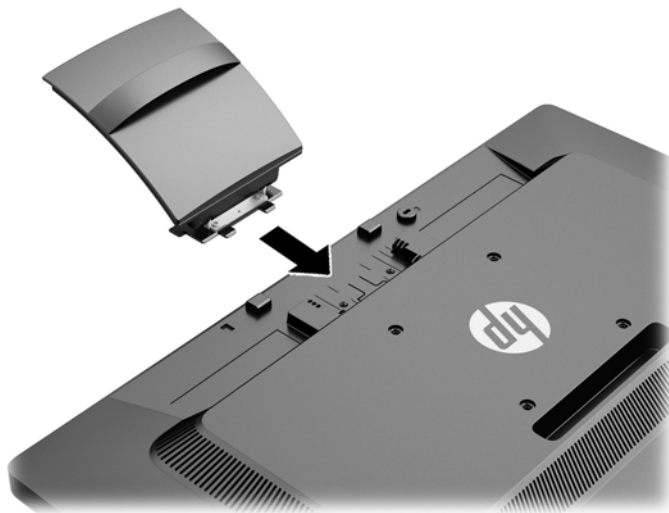
2 Setting Up the Monitor

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

Attaching the Monitor Base

⚠ CAUTION: The screen is fragile. Avoid touching or applying pressure to the screen; doing so can cause damage.

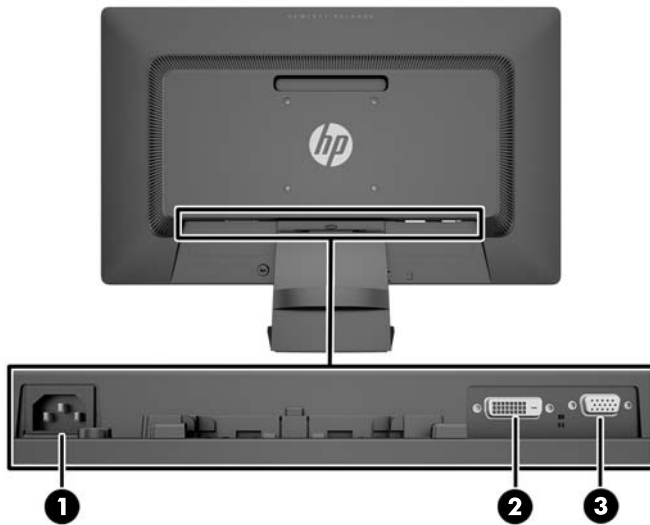
1. Lift the monitor from its box and place it face down on a flat surface.
2. Insert the stand into the slot on the back of the display head until it clicks.



3. Push the base onto the stand until it clicks into place.



Rear Components




Component	Function
1 AC Power Connector	Connects the AC power cord to the monitor.
2 DVI-D	Connects the DVI-D cable to the monitor.
3 VGA	Connects the VGA cable to the monitor.

Connecting the Cables

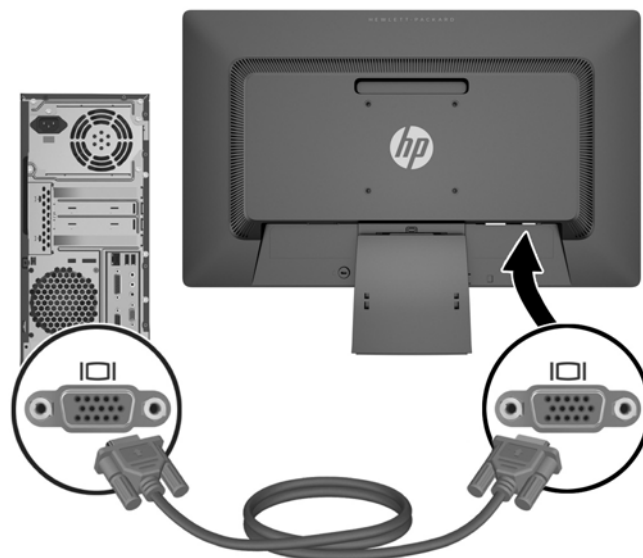
1. Place the monitor in a convenient, well-ventilated location near the computer.
2. Remove the cable management clip from the stand by pulling back on the two sides of the clip.



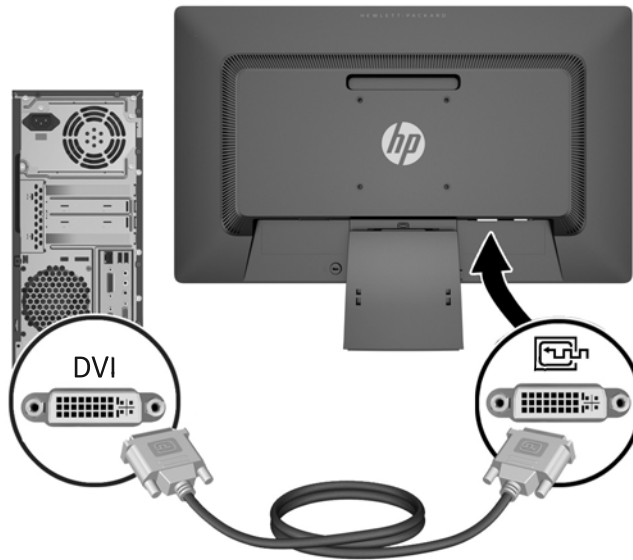
3. Connect a VGA signal cable or DVI-D signal cable.

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

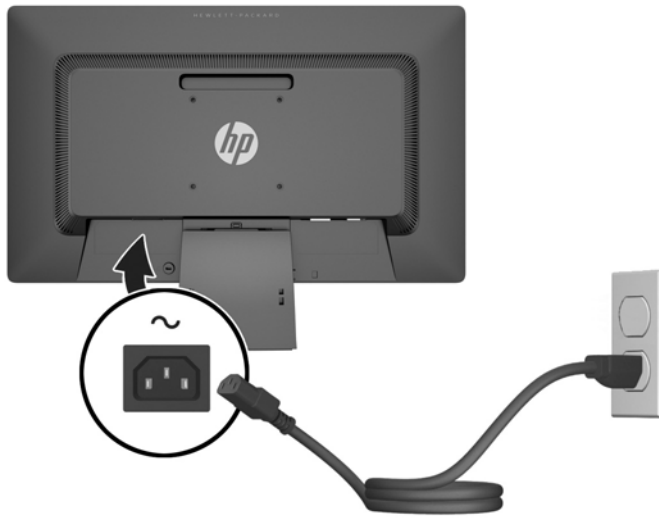
- For analog operation, use the VGA signal cable provided. Connect the VGA signal cable to the VGA connector on the rear of the monitor and the other end to the VGA connector on the computer.



- For DVI digital operation, use the DVI-D signal cable provided. Connect the DVI-D signal cable to the DVI connector on the rear of the monitor and the other end to the DVI connector on the computer.



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



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

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

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

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

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






5. Secure the cables in place with the cable management clip. Press the clip straight into the stand and be sure that the tabs on the sides of the clip snap into the slots on the stand.




Front Panel Controls



Table 2-1 Monitor Front Panel Controls

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

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

Adjusting the Monitor

Tilt the monitor panel 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 on the computer.
2. Press the power button on the front of the monitor to turn on the monitor.

CAUTION: Burn-in image damage may occur on monitors that display the same static image on screen for a prolonged period of time.* To avoid burn-in image damage on the monitor screen, you should always activate a screen saver application or turn off the monitor when it is not in use for a prolonged period of time. Image retention is a condition that may occur on all LCD screens. Monitors with a “burned-in image” are not covered under the HP warranty.

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

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

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

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

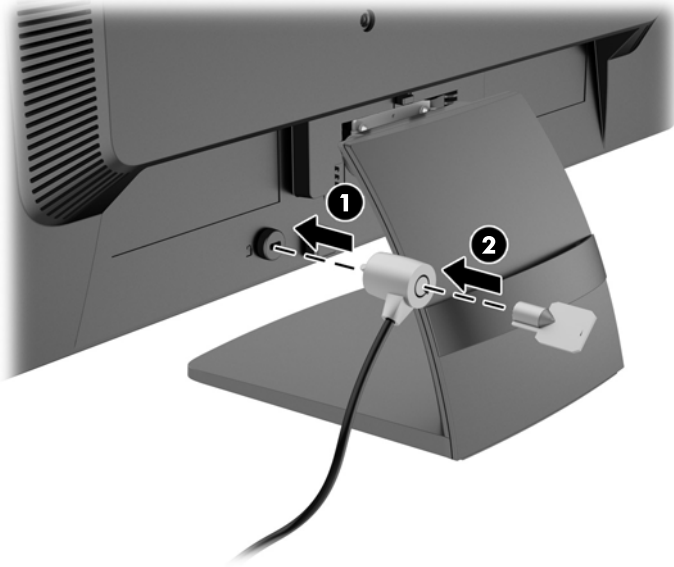
The monitor automatically scans the signal inputs for an active input and uses that input for the display. If two or more inputs are active, the monitor will display the default input source. If the default source is not one of the active inputs, then the monitor will display the highest ranking priority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

Locating the Rating Labels

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

Installing a Cable Lock

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




3 Finding More Information

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

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


Product Support

For additional information on using and adjusting your monitor, go to <http://www.hp.com/support>. Select your country or region, select **Troubleshooting**, and then enter your monitor model in the Search window.

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

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

- Find support telephone numbers
- Locate an HP service center

4 Technical Specifications


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

Table 4-1 ProDisplay P200

Maximum Weight (head+stand only, unpacked)	2.85 kg	6.28 lbs
Dimensions (include stand)		
Height	34.5 cm	13.59 inches
Depth	15.2 cm	5.99 inches
Width	46.7 cm	18.39 inches
Maximum Graphic Resolution	1600 x 900 (60 Hz) analog input 1600 x 900 (60 Hz) digital input	
Optimum Graphic Resolution	1600 x 900 (60 Hz) analog input 1600 x 900 (60 Hz) digital input	
Power Source	100 – 240 VAC 50/60 Hz	
Input Terminal	One VGA connector with cable included; one DVI connector with cable included	
Tilt (maximum)	30°	
Operating Temperature	0° to 35° C	32° to 95° F
Operating Altitude	Up to 5,000 m above sea level	Up to 16,404 ft above sea level

NOTE: For more information, go to <http://www.hp.com/go/productbulletin> and search for your specific display model to find the model-specific QuickSpecs. (English only)

Table 4-2 ProDisplay P231

Maximum Weight (unpackaged)	3.85 kg	8.48 lbs
Dimensions (include stand)		
Height	39.5 cm	15.55 inches
Depth	16.6 cm	6.54 inches
Width	54.4 cm	21.42 inches

Table 4-2 ProDisplay P231 (continued)

Maximum Graphic Resolution	1920 x 1080 (60 Hz) analog input	
	1920 x 1080 (60 Hz) digital input	
Optimum Graphic Resolution	1920 x 1080 (60 Hz) analog input	
	1920 x 1080 (60 Hz) digital input	
Power Source	100 – 240 VAC 50/60 Hz	
Input Terminal	One VGA connector with cable included; one DVI connector with cable included	
Tilt (maximum)	30°	
Operating Temperature	0° to 35° C	32° to 95° F
Operating Altitude	Up to 5,000 m above sea level	Up to 16,404 ft above sea level

NOTE: For more information, go to <http://www.hp.com/go/productbulletin> and search for your specific display model to find the model-specific QuickSpecs. (English only)

Preset Display Resolutions

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

Table 4-3 ProDisplay P200 Factory Preset Modes

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	45.00	59.940
6	1280 × 800	49.702	59.810
7	1280 × 1024	63.981	60.02
8	1440 × 900	55.935	59.887
9	1600 × 900	60.000	60.000

Table 4-4 ProDisplay P231 Factory Preset Modes

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

Table 4-4 ProDisplay P231 Factory Preset Modes (continued)

4	1024 × 768	48.363	60.004
5	1280 × 720	45.00	60.00
6	1280 × 1024	63.981	60.02
7	1440 × 900	55.935	59.887
8	1600 × 900	60.00	60.00
9	1680 × 1050	65.29	59.954
10	1920 × 1080	67.50	60.00

Entering User Modes

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


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

If this occurs, you may need to readjust the parameters of the monitor screen by using the On-Screen Display (OSD). Press the front panel **Menu** button to access the OSD feature. 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 setting as 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 monitor supports a reduced power state. The reduced power state will be entered into if the monitor detects the absence of either the horizontal sync signal and/or the vertical sync signal. Upon detecting the absence of these signals, the monitor screen goes blank, the backlight turns off, and the power light turns 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 state.

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

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

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