



User Guide

© 2015 HP Development Company, L.P.
Microsoft and Windows are U.S. registered trademarks of
the Microsoft group of companies.

The information contained herein is subject to change
without notice. The only warranties for HP products and
services are set forth in the express warranty statements
accompanying such products and services. Nothing
herein should be construed as constituting an additional
warranty. HP shall not be liable for technical or editorial
errors or omissions contained herein.

This document contains proprietary information that is
protected by copyright. No part of this document may be
photocopied, reproduced, or translated to another
language without the prior written consent of HP
Company.

First Edition (March 2016)

Document Part Number: 847511-001

About This Guide

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

Table of Contents

About This Guide

1. Product Features

2. Safety and Maintenance Guidelines

Important Safety Information	2
Safety Precautions	2
Maintenance Guidelines	3
Cleaning the Monitor	3

3. Setting Up the Monitor

Unpacking the Monitor	4
Installing the Monitor	4
Connecting Monitor Cables	7
High-Bandwidth Digital Content Protection (HDCP)	7
Connecting the Power Cable	8
Adjusting the Tilt	9

4. Operating the Monitor

Downloading the monitor driver from the Internet	10
Front-Panel Controls	11
Using the On-Screen Display (OSD)	12
Assigning the Function buttons	13
Using Auto-Sleep Mode	14
Selecting Video Input Connectors	15
Identifying Monitor Conditions	15
Adjusting Screen Quality (VGA only)	16
Power-Saver Feature	16

A. Troubleshooting

Solving Common Problems	17
Getting Support from hp.com	18
Preparing to Call Technical Support	18
Locating the Rating Label	18

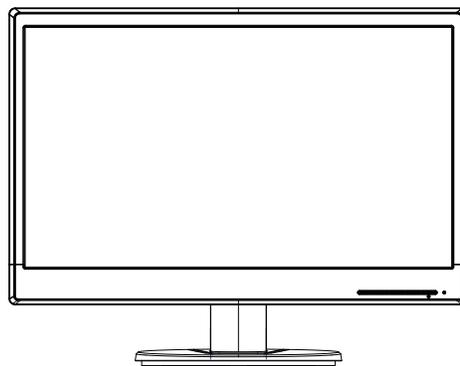
B. Technical Specifications

18.5 in/47 cm Models	19
19.5 in/49.4 cm Models	20
20.7 in / 52.6 cm and 21.5 in / 54.6 cm Models	21
Preset Video Modes	22
LCD Monitor Quality and Pixel Policy	24

1. Product Features

The HP LCD (liquid crystal display) monitors have an active matrix, thin-film transistor (TFT) screen with the following features:

- Large diagonal display
- Maximum graphics resolution:
 - 1366 x 768 @ 60Hz (18.5 in.)
 - 1440 x 900 @ 60Hz (19.5 in.)
 - 1920 x 1080 @ 60Hz (20.7 in. 21.5 in.)Plus full-screen support for lower resolutions
- VGA analog signal
- DVI digital signal (Select Models)
- Easy viewing from a sitting or standing position, or while moving from one side of the monitor to the other
- Tilt adjustment
- Removable base
- Built in stereo speakers
- Security lock slot for a locking security cable (security cable sold separately)
- Plug and Play capability, if supported by your computer system
- On-Screen Display (OSD) adjustments in several languages for easy setup and screen optimization
- Power Saver to reduce energy consumption
- HDCP (High Bandwidth Digital Content Protection) on DVI input



 **NOTE:** For safety and regulatory information, refer to the *Product Notices* provided in your documentation kit. To locate updates to the user guide for your product, go to <http://www.hp.com/support>, and select your country. Select Drivers & Downloads, and then follow the on screen instructions.

2. Safety and Maintenance Guidelines

Important Safety Information

A power cord is included with the monitor. If another cord is used, use only a power source and connection appropriate for this monitor. For information on the correct power cord set to use with the monitor, refer to the *Product Notices* provided on your media disc, if one is included, or in your documentation kit.

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

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

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

To reduce the risk of serious injury, read the *Safety and Comfort Guide*. It describes proper workstation, setup, posture, and health and work habits for computer users, and provides important electrical and mechanical safety information. This guide is located on the Web at <http://www.hp.com/ergo>.

⚠ 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, book cases, shelves, desks, speakers, chests, or carts may fall over and cause personal injury. Care should be taken to route all cords and cables connected to the LCD monitor so that they can not be pulled, grabbed, or tripped over.

Safety Precautions

- Use only a power source and connection compatible with this monitor, as indicated on the label/back plate of the monitor.
- Be sure the total ampere rating of the products connected to the outlet does not exceed the current rating of the electrical outlet, and the total ampere rating of the products connected to the power cord does not exceed the rating of the power cord. Look on the power label to determine the ampere rating (Amps or A) for each device.
- Install your monitor near a power outlet that you can easily reach. Disconnect the monitor by grasping the plug firmly and pulling it from the outlet. Never disconnect the monitor by pulling the cord.

- Do not allow anything to rest on the power cord. Do not walk on the cord.

Maintenance Guidelines

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

- Do not open the monitor cabinet or attempt to service this product yourself. Adjust only those controls that are covered in the operating instructions. If the monitor is not operating properly or has been dropped or damaged, contact an authorized HP dealer, reseller, or service provider.
- Use only a power source and connection appropriate for this monitor, as indicated on the label/back plate of the monitor.
- Be sure the total ampere rating of the products connected to the outlet does not exceed the current rating of the electrical outlet, and the total ampere rating of the products connected to the cord does not exceed the rating of the cord. Look on the power label to determine the ampere rating (AMPS or A) for each device.
- Install the monitor near an outlet that you can easily reach. Disconnect the monitor by grasping the plug firmly and pulling it from the outlet. Never disconnect the monitor by pulling the cord.
- Turn the monitor off when not in use. You can substantially increase the life expectancy of the monitor by using a screen saver program and turning off the monitor when not in use.
- Slots and openings in the cabinet are provided for ventilation. These openings must not be blocked or covered. Never push objects of any kind into cabinet slots or other openings.
- Do not drop the monitor or place it on an unstable surface.
- Do not allow anything to rest on the power cord. Do not walk on the cord.
- Keep the monitor in a well-ventilated area, away from excessive light, heat or moisture.
- When removing the monitor base, you must lay the monitor face down on a soft area to prevent it from getting scratched, defaced, or broken.

Cleaning the Monitor

1. Turn off the monitor and the computer.
2. Unplug the monitor from the wall outlet or the power brick.
3. Clean the monitor plastics with a clean cloth dampened with water.
4. Clean the monitor screen with an antistatic screen cleaner.

△ **CAUTION:** Do not use benzene, thinner, ammonia, or any other volatile substances to clean the monitor or the screen. These chemicals may damage the cabinet finish as well as the screen.

3. Setting Up the Monitor

Unpacking the Monitor

1. Unpack the monitor. Make sure all contents are included. Store the packing box.
2. Turn off the computer and other attached devices.
3. Prepare a flat area to assemble the monitor. You may need a flat, soft, protected area for placing the monitor screen-down while preparing it for installation.

Installing the Monitor

You can install the monitor on a desktop or wall-mount it. Place the monitor in a convenient, well-ventilated location near your computer. Connect the monitor cables after you have installed the monitor.

Preparing the monitor for desktop use

1. Set the monitor screen face down on a flat, soft, protected table or desk surface with the support column overhanging the edge.

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

2. Press the column onto the monitor support column until it locks in place.



3. Press the base into the column until it locks in position.



4. Lift the monitor to an upright position and place on a flat, stable surface.



Preparing the monitor for wall-mounting

1. Check the stability of the wall-mounting fixture.

⚠ WARNING! To reduce the risk of personal injury or of damage to the equipment, check that the wall-mounting fixture is adequately installed and secured before attaching the monitor. Refer to the instructions supplied with the wall-mounting fixture and check that it is capable of supporting the monitor.

2. Disconnect the power cable and any other cables from the monitor.
3. Place the monitor face down on a flat, protected surface.

4. Remove the base and slide it away from the bottom of the monitor.



5. Four threaded holes are exposed on the back panel of the monitor. These holes are for screws to attach the swing arm or other mounting fixture to the back of the monitor.
6. Follow the instructions included with the mounting fixture to ensure that the monitor is safely attached. The four threaded holes that are on the back of the panel are compliant with the VESA standard for mounting flat-panel monitors.
7. Attach a swing arm or other mounting fixture.

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

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

Connecting Monitor Cables

Connecting the VGA (Analog) Cable or DVI-D (Digital) Cable

Use a VGA video cable or a DVI-D cable to connect your monitor to your computer. To use DVI, you must have a DVI-compliant graphic card. Connectors are located on the back of the monitor. Be sure the computer and monitor are turned off and unplugged.

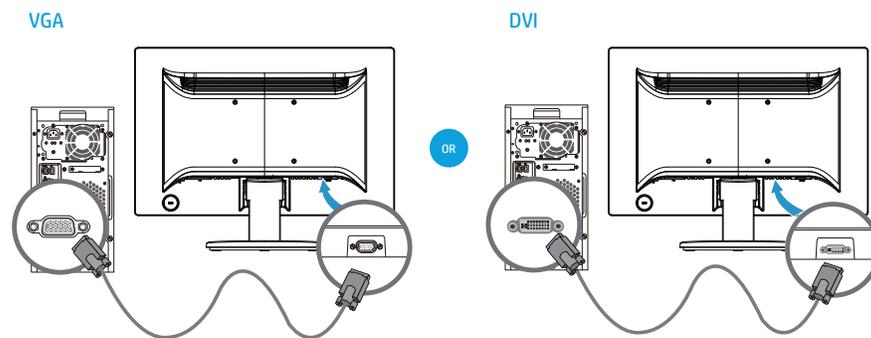
1. To connect the VGA cable:

Connect one end of the VGA video cable to the back of the monitor and the other end to the VGA video connector on the computer.

2. To connect the DVI-D cable (Select Models):

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

 **NOTE:** Connector locations may vary.



 **NOTE:** When using a VGA or DVI signal, you must connect your audio separately because a VGA or DVI signal converts only video data, not audio data.

High-Bandwidth Digital Content Protection (HDCP)

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

Connecting the Power Cable

1. Follow all Electrical and Power Warnings

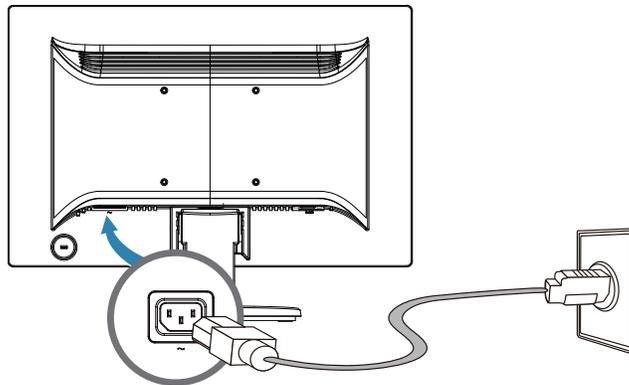
⚠ WARNING! To reduce the risk of electric shock or damage to your equipment: Do not disable the power cord grounding plug. The grounding plug is an important safety feature.

Plug the power cord into a grounded (earthed) electrical outlet.

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

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

See "Technical Specification" (Appendix B) for additional information.



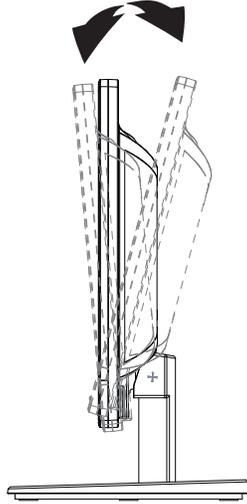
2. Connect one end of the power cable to the monitor and the other end to a grounded electrical outlet.

⚠ WARNING! To prevent injury from electrical shock, you should do one of the following if a properly grounded electrical outlet is not available: (1) You should use an electrical outlet adapter that provides proper grounding. (2) You should have a properly grounded electrical outlet installed.

Adjusting the Tilt

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

1. Face the front of the monitor and hold the base so that you do not topple the monitor while changing the tilt.
2. Adjust the tilt by moving the top edge of the monitor either toward or away from you, without touching the screen.



4. Operating the Monitor

 **NOTE:** You might need to install the digitally signed monitor drivers (INF or ICM files). If you determine that you need to update the drivers, you can install the monitor driver INF and ICM files from the Internet.

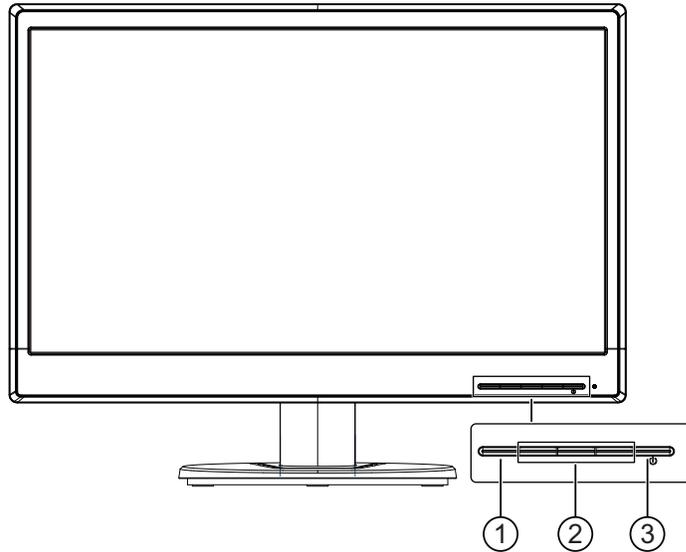
Downloading the monitor driver from the Internet

To download the latest version of drivers and software files from the HP Support site:

1. Refer to: <http://www.hp.com/support>.
2. Select **Drivers & Downloads**, type your monitor model in the find by product search field, and click **Go**.
3. If necessary, select your monitor from the list.
4. Select your operating system, and then click **Next**.
5. Click **Driver - Display/Monitor** to open the list of drivers.
6. Click on the driver.
7. Click the **System Requirements** tab, and then verify that your system meets the program minimum requirements.
8. Click **Download** and follow the on-screen instructions to download the software.

Front-Panel Controls

The monitor buttons are located on the bottom of the front panel



No.	Icon	Description
1	Menu button	Opens and closes the OSD menu. NOTE: To activate the Menu button and the Function buttons, press any of the buttons so that the button labels appear on the screen.
2	Function buttons	Use these buttons to navigate through the OSD menu based on the indicators next to the buttons that are activated while the OSD menu is open. NOTE: You can reconfigure the Function buttons in the OSD menu to quickly select the most commonly used operations.
3	Power button	Turns the monitor on or off.

Using the On-Screen Display (OSD)

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 monitor's front bezel.

To access the OSD menu and make adjustments, do the following:

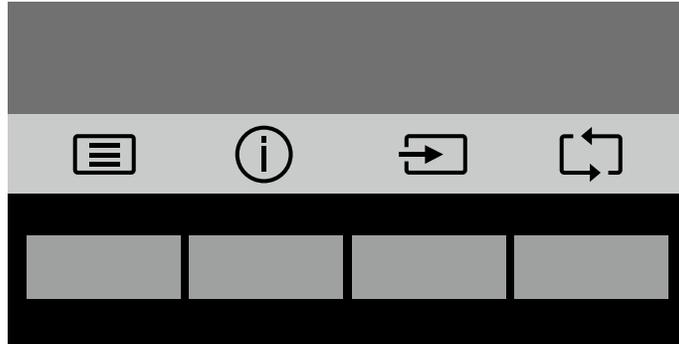
1. If the monitor is not already on, press the Power button to turn on the monitor.
2. To access the OSD menu, press one of the four front bezel Function buttons to activate the buttons, and then press the Menu button to open the OSD.
3. Use the three Function buttons to navigate, select, and adjust 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 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

Pressing one of the four front bezel Function buttons activates the buttons and displays the icons above the buttons. The factory default button icons and functions are shown below.



Button	Function
Menu	Opens the OSD (On-Screen Display) menu.
Information (Function button 1 - assignable)	Opens the Information menu.
Next Active Input (Function button 2 - assignable)	Switches the monitor's input source to the next active input.
Return (Function button 3 - assignable)	Return to the previous menu level.

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 four front bezel 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 only assign the three Function buttons. You can not reassign the Menu button or the Power button.

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 front bezel Function buttons 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.

Selecting Video Input Connectors

The input connectors are:

- VGA connector (analog)
- DVI-D connector (digital) (Select Models)

The monitor automatically determines which inputs have valid video signals, and displays the image.

You can connect the VGA cable or the DVI-D cable, or both. If both cables are installed, the default input selection is DVI. The source of input can be switched using the Input Select option in the OSD menu.

Identifying Monitor Conditions

Special messages will appear on the monitor screen when identifying the following monitor conditions:

- **Monitor Status** - When the monitor is powered on or when the input source signal is changed, a Monitor Status message is displayed for five seconds. The message shows which input is the current active signal, the status of the auto-switch source setting (On or Off), the default source signal, the current preset display resolution, and the recommended preset display resolution.
- **Input Signal Out of Range** - Change resolution setting to 1366 x 768 @ 60Hz (18.5 in.) or 1440 x 900 @ 60Hz (19.5 in.) or 1920 x 1080 @ 60Hz (20.7 in. 21.5 in.). Indicates the monitor does not support the input signal because the resolution and/or refresh rate are set higher than the monitor supports.
- **No Source Signal** - Indicates the monitor is not receiving a video signal from the PC on the monitor video input connector. Check to determine if the PC or input signal source is off or in the power saving mode.
- **Auto Adjustment in Progress** - Indicates the auto-adjustment function is active.
- **Monitor Going to Sleep** - Indicates the screen display is entering a sleep mode.
- **Check Video Cable** - Indicates the video cable is not properly connected to the computer.
- **OSD Lockout** - The OSD can be enabled or disabled by pressing and holding the Menu button on the front panel for 10 seconds. If the OSD is locked, the warning message OSD Lockout displays for ten seconds.
 - If the OSD is locked, press and hold the Menu button for 10 seconds to unlock the OSD.
 - If the OSD is unlocked, press and hold the Menu button for 10 seconds to lock the OSD.
- **Power Button Lockout** - Indicates the power button is locked. If the power button is locked, the warning message Power Button Lockout displays.
 - If the power button is locked, press and hold the power button for 10 seconds to unlock the power button function.
 - If the power button is unlocked, press and hold the power button for 10 seconds to lock out the power button function.
- **Dynamic Contrast Ratio On** - Indicates that Dynamic Contrast Ratio has been turned on. This occurs if Dynamic Contrast Ratio is turned on in the Image Control OSD menu.
- **Dynamic Contrast Ratio Off** - Indicates that Dynamic Contrast Ratio has been turned off. This occurs if Dynamic Contrast Ratio is turned off in the Image Control OSD menu.

Adjusting Screen Quality (VGA only)

The auto adjustment feature automatically fine-tunes the image quality for display size, position, clock, and phase each time a new video mode is displayed. For more precise adjustments of VGA input, run the Auto Adjustment software available on your product support site at www.hp.com/support. If you want additional image quality improvement, use the Clock and Phase controls of the monitor to fine tune the image. See "Optimizing Analog Video" in this chapter.

Optimizing Analog Video

Some monitors contain advanced circuitry that allow the monitor to function as a standard analog monitor. Two controls in the OSD menu can be adjusted to improve analog image performance:

Clock - Increase or decrease the value to minimize any vertical bars or stripes visible on the screen background.

Phase - Increase or decrease the value to minimize video distortion or video jitter.

Use these controls only when the auto adjustment function does not provide a satisfactory monitor image in analog mode. To obtain the best results:

1. Allow the monitor to warm up for 30 minutes before adjusting.
2. Access the OSD menu, then select Image Setup.
3. Set the main Clock settings correctly first, because the Phase settings depend on the main Clock settings. 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, access the OSD menu, select Factory Reset, and then select Yes.

Power-Saver Feature

When the monitor is in normal operating mode, the Power light is blue and the monitor uses the normal watts of power. For power usage, refer to "Technical Specification" (Appendix B). The monitor also supports a power-saver mode that is controlled by the computer. When the monitor is in the reduced-power state, the monitor screen is blank, the backlight is off, and the Power light is amber. The monitor uses minimum power. When the monitor is "awakened", a brief warm-up period occurs before the monitor returns to normal operating mode. The energy-saving reduced power state activates if the monitor does not detect either the horizontal sync signal or the vertical sync signal. The power-saver feature must be activated on your computer for this feature to work. Refer to your computer documentation for instructions on setting energy-saver features (sometimes called power-management features).



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

A. Troubleshooting

Solving Common Problems

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

Problem	Possible Cause	Solutions
Screen is blank or video is flashing.	Power cord is disconnected.	Power cord is disconnected.
	Monitor is off.	Press the front bezel Power button. NOTE: If pressing the Power button has no effect, press and hold the Power button for 10 seconds to disable the Power button lockout feature.
	Video cable is improperly connected.	Connect the video cable properly. See Connecting the cables 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 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 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 disable the Power Button Lockout function.

Getting Support from hp.com

Before you contact customer service, refer to HP Technical Support at:
<http://www.hp.com/support>

Select your country/region, and then follow the links to the support page for your monitor.

Preparing to Call Technical Support

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

Have the following information available when you call:

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

Locating the Rating Label

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

The rating label is on the back of the monitor.

B. Technical Specifications

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

Face treatment: Glare polarizer with hard coating

Input terminal:

- VGA connector
- DVI-D connector (Select Models)

18.5 in/47 cm Models

Specifications:	
Display Type:	TFT LCD active matrix
Viewable Image Size	47 cm (18.5 in.) diagonal
Tilt	-3.5° (+/-1.5)~+13.5° (+/-1.5)
Maximum Weight (unpacked)	2.36 kg (5.2 lbs)
Dimensions (w x h x d)	44.1cm x 34.5cm x 19.84cm 17.36 x13.58 x 7.81 in
Maximum Graphics Resolution	1366 x 768 @ 60 Hz
Optimum Graphics Resolution	1366 x 768 @ 60 Hz
Text Mode	720 x 400
Dot Pitch	0.3 x 0.3 mm / 0.012 x 0.012 in
Horizontal Frequency (analog mode)	24 to 70 kHz
Vertical Frequency (analog mode)	50 to 75 Hz
Operating Temperature	41° to 95°F (5° to 35°C)
Non-Operating Temperature	-4° to 140°F (-20° to 60°C)
Operating Humidity	20% to 80%
Non-Operating Humidity	5% to 95%
Power Source	100-240V~, 50/60 Hz

19.5 in/49.4 cm Models

Specifications:	
Display Type:	TFT LCD active matrix
Viewable Image Size	49.4 cm (19.5 in.) diagonal
Tilt	-3.5° (+/-1.5)~+21.5° (+/-1.5)
Maximum Weight (unpacked)	2.49 kg (5.49 lbs) / 2.5 kg (5.51 lbs)
Dimensions (w x h x d)	45.07cm x 40.3cm x 19.0cm 17.74 x15.87 x 0.75 in
Maximum Graphics Resolution	1440 x 900 @ 60 Hz
Optimum Graphics Resolution	1440 x 900 @ 60 Hz
Text Mode	720 x 400
Dot Pitch	0.2907 x 0.2915 mm/0.011 x 0.011 in
Horizontal Frequency (analog mode)	24 to 70 kHz
Vertical Frequency (analog mode)	50 to 75 Hz
Operating Temperature	41° to 95°F (5° to 35°C)
Non-Operating Temperature	-4° to 140°F (-20° to 60°C)
Operating Humidity	20% to 80%
Non-Operating Humidity	5% to 95%
Power Source	100-240V~, 50/60 Hz

20.7 in / 52.6 cm and 21.5 in / 54.6 cm Models

Specifications:	
Display Type:	TFT LCD active matrix
Viewable Image Size	52.6 cm (20.7 in.) diagonal 54.6 cm (21.5 in.) diagonal
Tilt	-3.5° (+/-1.5)~+13.5° (+/-1.5)
Maximum Weight (unpacked)	20.7 in: 2.99 kg (6.59 lbs) 21.5 in: 3.59 kg (7.92 lbs)
Dimensions (w x h x d)	20.7 in / 52.6 cm: 48.94 cm x 37.25 cm x 22.34 cm 19.26 x14.67 x 8.8 in 21.5 in / 54.6 cm: 50.76 cm x 38.25 cm x 22.34 cm 19.98 x15.06 x 8.8 in
Maximum Graphics Resolution	1920 x 1080 @ 60 Hz
Optimum Graphics Resolution	1920 x 1080 @ 60 Hz
Text Mode	720 x 400
Dot Pitch	20.7 in / 52.6 cm: 0.2385 x 0.2385 mm/0.01 x 0.01 in 21.5 in / 54.6 cm: 0.24825x0.24825mm/0.01 x 0.01 in
Horizontal Frequency (analog mode)	24 to 80 kHz
Vertical Frequency (analog mode)	50 to 76 Hz
Operating Temperature	41° to 95°F (5° to 35°C)
Non-Operating Temperature	-4° to 140°F (-20° to 60°C)
Operating Humidity	20% to 80%
Non-Operating Humidity	5% to 95%
Power Source	100-240V~, 50/60 Hz

Preset Video Modes

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

18.5 in/47 cm Models

Item	Preset Resolution	Horizontal Frequency (kHz)	Vertical Frequency (Hz)
1	640 x 480	31.47	59.94
2	720 x 400	31.47	70.09
3	800 x 600	37.88	60.32
4	1024 x 768	48.36	60.00
5	1280 x 720	45.00	60.00
6	1280 x 800	49.70	59.81
7	1280 x 1024	63.98	60.02
8	1366 x 768	55.93	59.88

19.5 in/49.4 cm Models

Item	Preset Resolution	Horizontal Frequency (kHz)	Vertical Frequency (Hz)
1	640 x 480	31.47	59.94
2	720 x 400	31.47	70.09
3	800 x 600	37.88	60.32
4	1024 x 768	48.36	60.00
5	1280 x 720	45.00	60.00
6	1280 x 800	49.70	59.81
7	1280 x 1024	63.98	60.02
8	1440 x 900	55.93	59.88

20.7 in / 52.6 cm Models

Item	Preset Resolution	Horizontal Frequency (kHz)	Vertical Frequency (Hz)
1	640 x 480	31.47	59.94
2	720 x 400	31.47	70.09
3	800 x 600	37.88	60.32
4	1024 x 768	48.36	60.00
5	1280 x 720	45.00	60.00
6	1280 x 800	49.70	59.81
7	1280 x 1024	63.98	60.02
8	1440 x 900	55.93	59.88
9	1600 x 900	60.00	60.00
10	1680 x 1050	65.30	59.95
11	1920 x 1080	67.50	60.00

21.5 in / 54.6 cm Models

Item	Preset Resolution	Horizontal Frequency (kHz)	Vertical Frequency (Hz)
1	640 x 480	31.47	59.94
2	720 x 400	31.47	70.09
3	800 x 600	37.88	60.32
4	1024 x 768	48.36	60.00
5	1280 x 720	45.00	60.00
6	1280 x 800	49.70	59.81
7	1280 x 1024	63.98	60.02
8	1440 x 900	55.93	59.88
9	1600 x 900	60.00	60.00
10	1680 x 1050	65.30	59.95
11	1920 x 1080	67.50	60.00

LCD Monitor Quality and Pixel Policy

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

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

To locate defective pixels, the monitor should be viewed under normal operating conditions and in normal operating mode at a supported resolution and refresh rate, from a distance of approximately 50 cm (16 inches). We expect that, over time, the industry will continue to improve its ability to produce displays with fewer cosmetic imperfections, and we will adjust guidelines as improvements are made. For more information about your LCD Monitor, refer to the HP Web site at: <http://www.hp.com/support>.