



# User Guide

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## About This Guide


This guide provides information on safety and maintenance, setting up the LCD display, installing drivers, using the on-screen display menu, troubleshooting and technical specifications.

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 **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.

 **TIP:** Tips provide helpful hints or shortcuts.

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# 1 Product features



The interactive 3D display has the following features:

- High-definition stereoscopic display with full images rendered for each eye for ultra-high realism
- 60 cm (23.6 in) diagonal display with four embedded tracking cameras and an adjustable stand
- Graphics resolution 1080 x 1920 @ 120 Hz plus full-screen support for lower resolutions
- 3D passive glasses that contain circularly polarized lenses
- Stylus that operates in the free space in front of the 3D display
- DisplayPort digital input signal
- Digital visual interface (DVI) digital input signal
- USB cable to enable tracking the stylus in 3D space
- AC power adapter to accommodate different geographical regions

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 **NOTE:** For safety and regulatory information, refer to the *Product Notices* provided on your media disc, if one is included, or 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.

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## 2 Safety and maintenance guidelines

### Important safety information

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

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

- Plug the power cord into an AC outlet that is easily accessible at all times.
- Disconnect power from the computer by unplugging the power cord from the AC outlet.
- If provided with a 3-pin attachment plug on the power cord, plug the cord into a grounded (earthed) 3-pin outlet. Do not disable the power cord grounding pin, for example, by attaching a 2-pin adapter. The grounding pin is an important safety feature.

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

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

Do not open or disassemble the display or any hardware components associated with this product. In some cases, there is risk of electrical shock. Opening the system or damaging components will void the warranty.

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 display, as well as the computer, connect all power cords for the computer and its peripheral devices (such as a display, 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.

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 display near an outlet that you can easily reach. Disconnect the display by grasping the plug firmly and pulling it from the outlet. Never disconnect the display by pulling the cord.

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

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Use the appropriate and correctly sized furniture to support your HP LCD display properly.


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

Do not remove the stand from the display unless the display is to be mounted. Improper use could injure you or damage the display.

If the display's screen is damaged for any reason, do not touch any liquid emanating from the unit. In case of contact with skin, rinse or flush any affected surfaces immediately with running water. Please consult a physician in all cases.

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

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


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## Maintenance guidelines

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

- When moving or adjusting the display, be careful when grasping the upper plastic enclosure. Excessive pressure could misalign or damage the sensors.
- Mishandling or dropping the display may cause alignment problems with the tracking device.
- Avoid placing sharp or heavy objects on the display to prevent scratching the display surface or causing breakage.
- Avoid dropping the stylus or catching the cable on immovable objects.
- When using 3D passive glasses, be careful not to remove or damage the markers, which are critical to headtracking.
- Do not open the display cabinet or attempt to service this product yourself. Adjust only those controls that are covered in the operating instructions. If the display 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 display, as indicated on the label/back plate of the display.
- Press the power button to put the display in sleep mode when not in use. This turns the display backlight off, but does not turn the display off. You can substantially increase the life expectancy of the display by using a screen saver program and putting the display in sleep mode when not in use.

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 **NOTE:** Displays with a “burned-in image” are not covered under the HP warranty.

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- Keep the display in a well-ventilated area, away from excessive light, heat or moisture.
- When removing the display stand, you must lay the display face down on a flat, soft surface to prevent it from getting scratched, defaced, or broken.

## Basic operation

- The display works best in moderate lighting conditions. Sunlight and bright lights within the view of the sensors can affect overall performance of the tracking mechanisms. Avoid bright lights for best results.
- For best viewing performance, allow the display to warm up. This will occur after the display has been on for more than 30 minutes.
- Place the display in a location where the power supply cord is easily accessible so you can quickly disconnect the power source in case of an emergency.



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**NOTE:** The power button on the display puts the display in sleep mode. This turns the display backlight off, but does not turn the display off.

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## Environment

Do not operate or store hardware in any location where temperature changes are severe.

Peak performance will be achieved in office-like environments, with moderate lighting and controlled temperatures.

## Cleaning the display

1. Turn off the display and unplug the power cord from the back of the unit.
2. Dust the display by wiping the screen and the cabinet with a soft, clean antistatic cloth.
3. For more difficult cleaning situations, use a 50/50 mix of water and Isopropyl alcohol.

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

**CAUTION:** Do not use cleaners that contain any petroleum based materials such as benzene, thinner, or any volatile substance to clean the display screen or cabinet. These chemicals may damage the display.

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## Shipping the display

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



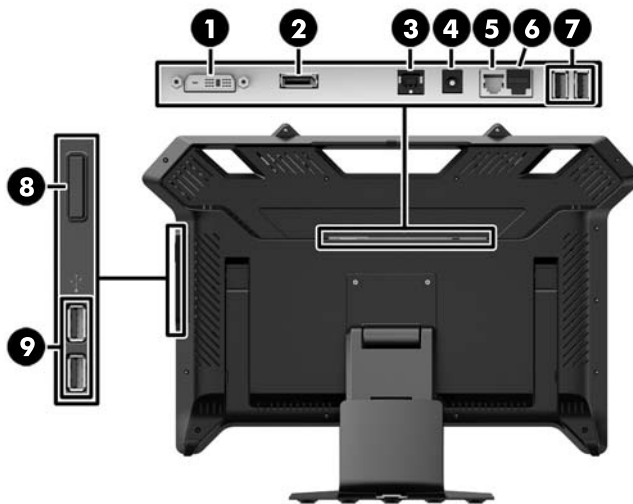
# 3 Setting up the display

## Unpacking the display

1. Unpack the display and store the packing box.
2. Turn off the computer and other attached devices.
3. Prepare a flat area to assemble the display. You may need a flat, soft surface for placing the display screen-down while preparing it for installation.

## Connecting display cables

**CAUTION:** Before connecting cables to the display, ensure that the computer and display are powered off.



Component	Function
1	DVI connector Connects the DVI cable to the display (DVI cable not provided)
2	DisplayPort connector Connects the DisplayPort cable to the display
3	USB Type B connector Connects the type B USB connector of the USB cable to the display
4	Power connector Connects the external power adapter cable to the display
5	Stylus connector Connects the stylus cable to the display
6	Reserved port Reserved for future use
7	USB 2.0 connectors (2) Connects a USB device or cable to the display
8	Power button Turns the display on or off
9	USB 2.0 connectors (2) Connects a USB device or cable to the display

Audio output from the display is not supported.

The video source is determined by the video cable used. The display automatically determines which video signals are valid. If both cables are connected and active, the display defaults to the DisplayPort cable. To switch between two active sources, remove the cable of the undesired input.

1. If you prefer to use a DVI video connection, connect one end of a DVI video cable (not provided) to the DVI connector (1) on the display and the other end to the DVI video connector on the computer.
2. Connect the one end of the DisplayPort cable to the DisplayPort (2) connector on the display and the other end to the DisplayPort connector on the computer.
3. Connect one end of the USB cable to the USB Type B (3) connector on the display and the other end to a USB connector on the computer.
4. Connect the external power adapter cable to the power connector (4) on the display.



Follow all electrical and power warnings

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**⚠ 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.

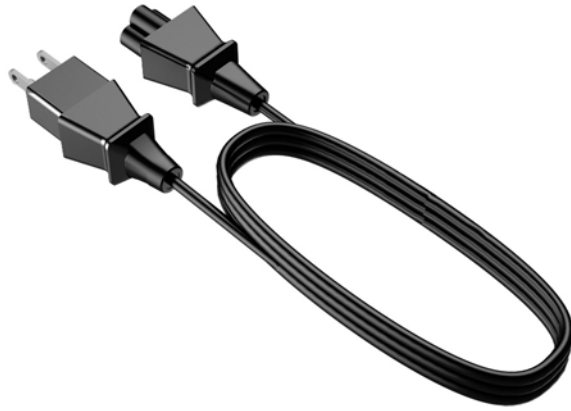
Be sure that the grounded power outlet you plug the power cord into is easily accessible to the operator and located as close to the equipment as possible. A power cord should be routed so that it is not likely to be walked on or pinched by items that are placed on it or against it.

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.

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

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5. Connect one end of the power cord to the power adapter and the other end to a grounded AC power outlet.

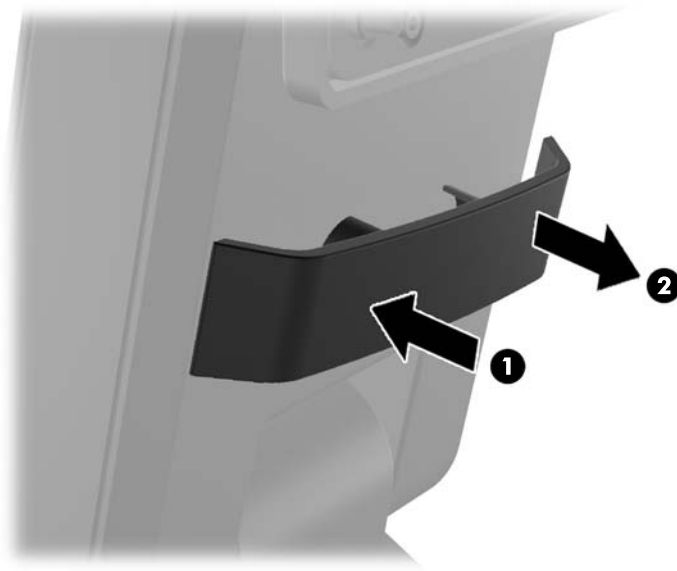


6. Connect the stylus cable to the stylus connector (5) on the display.

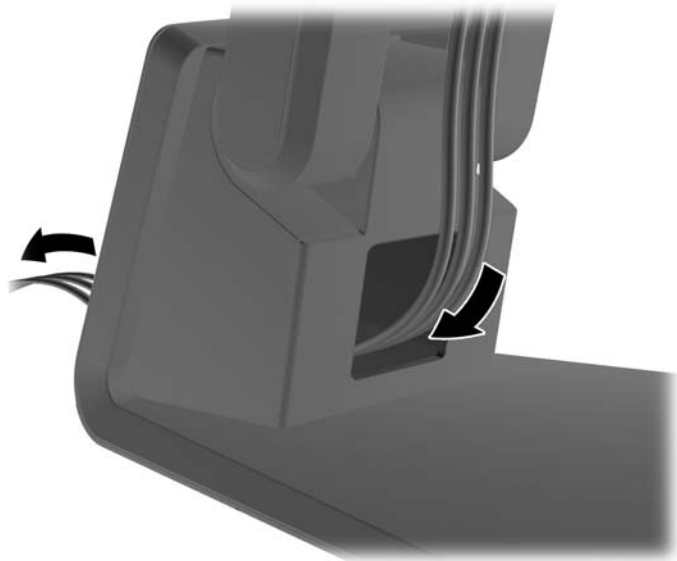


7. If desired, connect the keyboard cable to a USB connector (7 or 9) on the display or to the computer.
8. If desired, connect the mouse cable to a USB connector (7 or 9) on the display or to the computer.

9. Remove the clip on the neck of the stand by pressing inward on one side of the clip (1) and pulling outward on the other side of the clip (2).

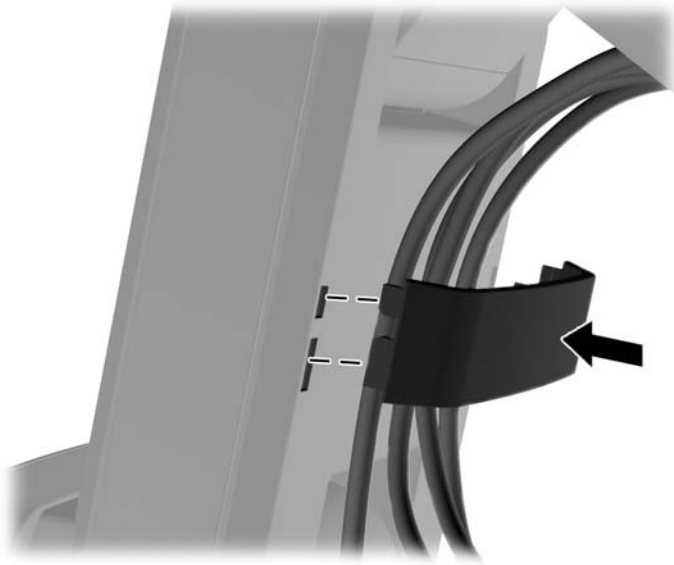


10. Route the cables through the hole in the center of the base.





11. Replace the clip on the neck of the stand so that it secures the cables.



12. When all cables have been properly connected, press the power button (8) on the side of the display to turn the display on.

## High-bandwidth Digital Content Protection (HDCP)

Your display supports HDCP and can receive high-definition content when using either the DisplayPort or DVI input. High-definition content is available in many sources, such as Blu-ray disc devices or HDTV air or cable broadcasts. Your computer graphics card and display must both support HDCP to display protected content.

## Turning on the display

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

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

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

## Selecting video input connectors

The input connectors are:

- DisplayPort connector
- DVI connector

The display automatically scans the signal inputs for an active input and uses that input for the display. If two inputs are active, the display will display the DisplayPort source.

## Locating the rating label

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

The rating label is on the back of the display.

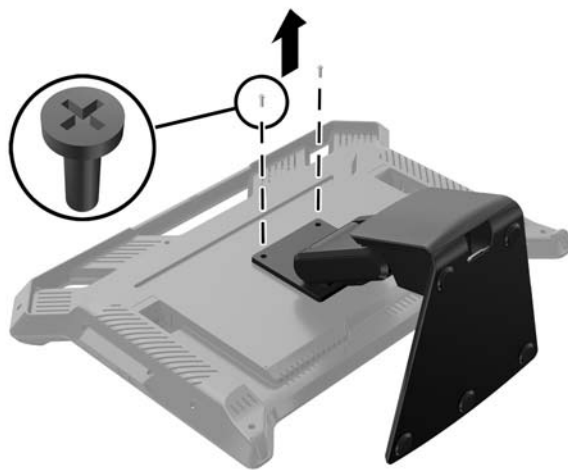
## Mounting the display

The display supports the VESA industry standard 100 mm holes. You can remove the display from the stand to install the panel on a wall, a swing arm, or other mounting fixture (mounting devices sold separately).

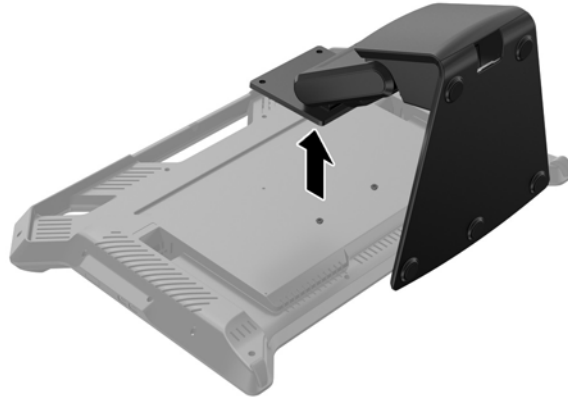
**⚠ CAUTION:** Before beginning to disassemble the display, be sure the display is turned off and all cables are disconnected.

This display supports the VESA industry standard 100 mm mounting holes. To attach a third-party mounting solution to the display, four 4 mm, 0.7 pitch, and 10 mm long screws are required. Longer screws must not be used because they may damage the display. 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 display panel. For best performance, it is important to use the power and video cables provided with the display.

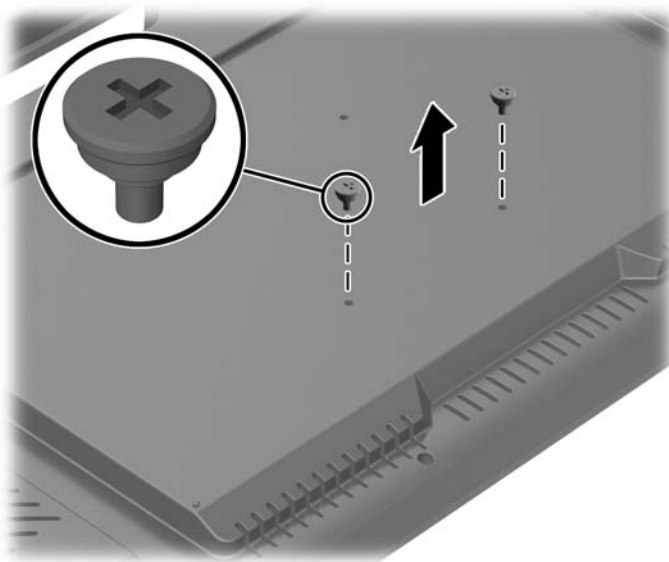
1. Disconnect and remove all cables from the display.
2. Adjust the display to the vertical position.
3. Lay the display face down on a flat surface covered by a clean, dry cloth.
4. Remove the two small screws that secure the stand to the display.



5. Slide the stand mounting bracket toward the bottom of the display so that the keyholes on the stand bracket align with the two large screws on the display and lift the stand up.



6. Remove the two large screws from the two lower VESA mounting holes on the display.



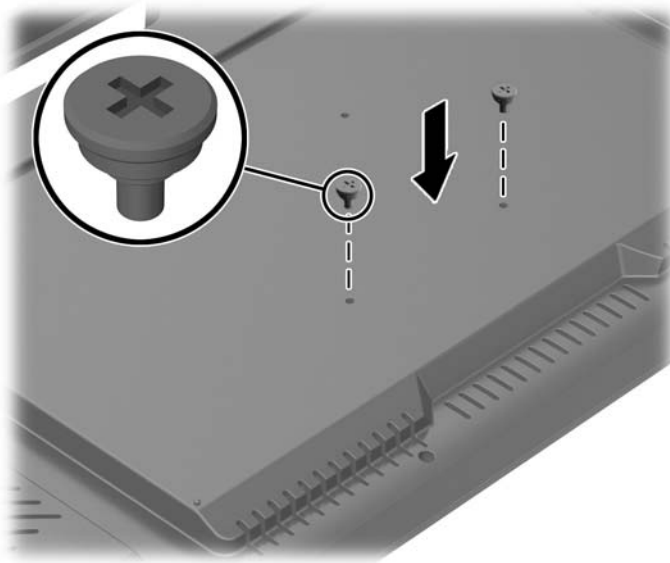
7. Follow the instructions provided with the mounting device to attach it to the display panel.

## Re-attaching the display stand

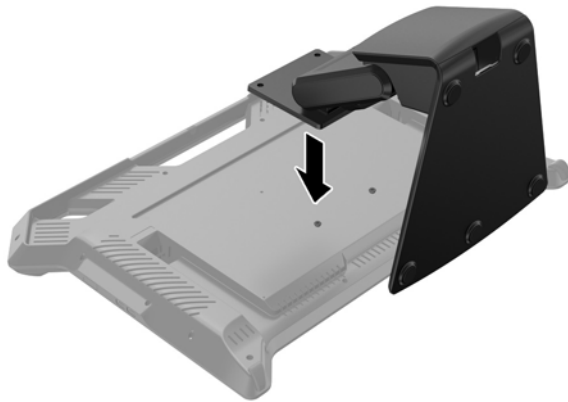
The stand attaches to the 100mm VESA mounting holes on the rear panel.

1. Place the display panel face down on a flat surface covered with a clean, dry cloth.
2. If there are screws installed in the VESA mounting holes on the rear panel, remove the screws.

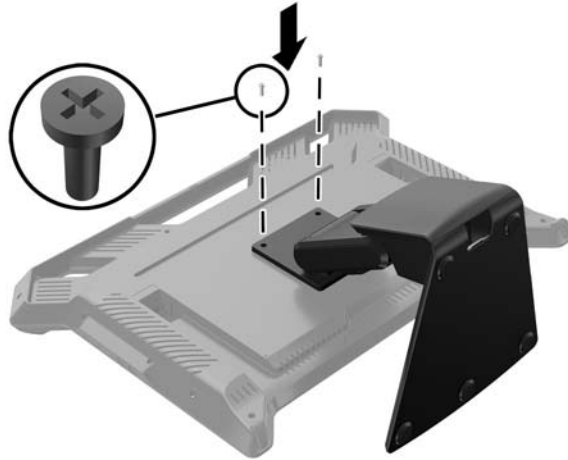
3. Install the two large screws included with the stand into the two lower VESA mounting holes on the display.



4. Place the stand mounting bracket on the rear of display so that the keyholes on the bracket align with the two large screws on the display, and then slide the mounting bracket toward the top of the display so that the screws heads are captured inside the keyholes.



5. Install the two small screws included with the stand into the upper two VESA mounting holes to secure the mounting bracket to the stand.



## Adjusting the display stand

You can adjust the display stand height and tilt to a variety of positions. Choose a position that is the most ergonomically appropriate for your usage.

**CAUTION:** To avoid breakage or other damage, avoid applying pressure to the LCD screen while changing the tilt or height.

**NOTE:** Tilt range is -5 degrees forward to +60 degrees backward.

- ▲ Face the front of the display and hold the base so that you do not topple the display while changing the tilt or height.

**NOTE:** HP recommends that you be in a center position to view the display in a perpendicular fashion. The display panel technology has a viewing angle dependence that will be noticeable if the viewer is not optimally positioned.



## Keyboard accommodation

The display can be used as a 2D display for email and web browsing when connected to a USB keyboard. Place the keyboard in the space between the front feet of the display stand. A low profile keyboard is able to nest or slide into the space at the base of the display. Connect the keyboard's USB cable to a USB port on either the side or back of the display.

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# 4 Software and utilities

## System software

### Installing System Software Installer

You can download the software from the disc that comes with your display or you can download all of the software and firmware to run from <https://zspace.com/setup>. First, download and run System Software Installer as described below. Later you can download applications.



**NOTE:** If you have a previous version of System Software Installer, uninstall it first. To uninstall System Software Installer, select the folder in the Start Menu. From the System folder, select Uninstall.

To install the software from the disc:

1. Insert the disc in the computer optical drive. The disc menu is displayed.
2. Select **Install System Software Installer**.
3. Follow the on-screen instructions in the Setup Wizard.

To install the software from the web

1. Open a browser and go to <https://zspace.com/setup>.
2. Double-click **System Software Installer**.
3. Follow the on-screen instructions in the Setup Wizard.
  - Install the Tracker software and the control panel, which are required to run applications.
  - The Desktop Wallpaper Images are optional.
  - If you see any of the following warnings, respond as directed:
    - If the display is not detected, wait a moment, and click Retry.
    - If you see a warning not to power down, click Yes to continue.
    - You may see a Windows message requesting access. It is very important that you approve access to assure stylus communication.
    - When Windows prompts you to restart, choose Restart Later. Do not interrupt the installation process.

When the System setup is complete, the System Check window appears.

### System Check

The System Check is a key feature of the control panel. It verifies that your display is set up properly and that your 3D passive glasses and stylus function correctly. The System Check launches automatically after you complete the System installation process.

Some steps in the System Check require the stylus, the 3D passive glasses, or both.

On the Welcome screen, click on Next to start the System Check. Follow the instructions on screen. If a test fails, the System Check will end and a message box will display a link to the support site for further information.

## Control Panel

You can rerun the System Check and perform other tasks in the Control Panel. To open the Control Panel, do one of the following:

- Select zSpace Control Panel from the Start Menu.
- Open the Windows Control Panel, then choose the zSpace Control Panel.

From here, you can:

- Run the System Check
- View system information
- Install firmware updates
- Restart the System
- Change the stylus buttons' mapping
- Enable or disable the stylus LED and vibration

## Experience

### Installing Experience

Experience is a demo application you can download and install. It uses a simple and fun approach to show the key features and benefits of the monitor.

Download Experience from the Software Downloads section of the support site.

Double-click the file you downloaded to install Experience. Follow the on-screen instructions.

### Using Experience

To run Experience, select the folder in the Windows Start Menu. From the Experience folder, select Experience.

Once the application loads, an opening scene appears with instructions. Follow the instructions to become familiar with using the stylus and different tools for selecting, scaling, and so on.

While in Experience, the following key functions are available:

- F: Display frame rate toggle (useful for measuring GPU performance)
- M: Manual stereo left/right frame swap
- R: Reset the application to the main startup scene
- +/-: Lengthen or reduce the stylus raycast beam
- ESC: Exit Experience

To exit Experience, press the ESC key on the keyboard. The application does not save information, so the next time you run Experience, you start at the beginning.

## Power-saver feature

The display supports a power-saver mode that is controlled by the computer. When the display is in the reduced-power state, the display screen is blank, the backlight is off, and the display uses minimum power.



When the display is "awakened," a brief warm-up period occurs before the display returns to normal operating mode. The energy-saving reduced power state activates if the display 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 display is connected to computers that have energy-saver features.

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## 5 Using 3D technology

The following items are provided for your 3D experience:

- Display
- 3D passive glasses with markers (regular glasses and clip-ons)
- Stylus



**NOTE:** Select computer models may include 3D content on a disc so that you can immediately begin enjoying 3D.

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The display operates under the control of the software application installed on the computer. The display's tracking subsystem is an infrared optical solution that consists of four IR cameras. Objects that are tracked by the cameras are the head position, using the 3D passive glasses, and the stylus.

The 3D passive glasses present separate left and right images to the viewers when combined with the display. The 3D passive glasses enable the system to track the viewer's head position in six degrees of freedom.

The stylus is used to interact and manipulate virtual objects in front of the display. It has three push-buttons that can serve as button inputs, similar to the buttons on a conventional computer mouse. The stylus supports two functions that can be used to indicate status (blue, green, and red lights) or conditions (vibration).

## 3D safety information

Carefully read all of the following safety precautions before using the 3D passive glasses and 3D display.

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**⚠ WARNING!** If you cannot see 3D content after you set up your 3D system, HP recommends that you discontinue use. Consult a physician if you suspect a physical problem seeing stereoscopic 3D.

**Photosensitive Epileptic Seizures**—Some individuals may experience a seizure or other complications when exposed to certain visual images, including flashing lights or patterns that may appear in 3D content. If you or any of your relatives have a history of seizures or epilepsy, consult a physician before using the 3D passive glasses and 3D display. Even those without a personal family history of epilepsy or stroke may have an undiagnosed condition that can cause photosensitive epileptic seizures.

If you experience any of the following symptoms, immediately stop watching 3D content and consult a physician: **altered vision, light-headedness, dizziness, involuntary movements such as eye or muscle twitching, convulsions, nausea, loss of awareness, confusion, cramps,** and/or **disorientation**. Parents should monitor and ask their children if they have any of the above symptoms. Children and teenagers may be more likely than adults to experience these symptoms.

Do not watch 3D content when you feel sleepy, tired, or sick. Watching 3D with the 3D passive glasses for an extended period of time may cause a headache or fatigue. If you feel headache, fatigue, or dizziness, stop using the 3D passive glasses and rest.

Your vision can change to accommodate viewing through the 3D passive glasses. After removing the 3D passive glasses, wait several minutes before resuming regular activities.

Some 3D content may startle viewers. People who are pregnant, elderly, or epileptic, and those suffering from severe physical conditions are advised to avoid using the display's 3D functionality.

The vision of young children (especially children under the age of 6) is still under development. Consult your doctor (such as a pediatrician or eye doctor) before allowing young children to watch 3D video images or play 3D videos games. Parents or guardians should supervise young children to ensure they follow these recommendations.

Do not use the 3D passive glasses near water.

To prevent damage to the lenses, use caution when using the 3D passive glasses and properly store them when not in use. Do not use the 3D passive glasses if there is any sign of damage or cracking in the lenses.

The 3D passive glasses are not prescription eyewear, sunglasses, or protective goggles. To prevent personal injury, do not use the 3D passive glasses for any general eyewear purposes.

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## Using the 3D passive glasses

Your 3D experience begins with active 3D content and the 3D passive glasses.

**WARNING!** Before using the 3D passive glasses, read [3D safety information on page 22](#).

For optimal 3D viewing, you should be approximately **60 to 70 centimeters** (24 to 28 inches) from the computer display. Depending on the viewing angle, the operational distance from the display can vary.

When watching 3D images, do not incline your head relative to the horizontal direction of the images.

In some cases, viewing objects in 3D stereo may cause disorientation and the objects may appear blurry. One possible reason is the reversal in the detection of the left and right frames in the specific application. For some applications, pressing the **M** key may reverse the stereo. By toggling between the displays for the left and right eyes, it may be possible to find the correct setting.

**NOTE:** Before using the 3D passive glasses, remove the clear protective film from both sides of the lenses (select models only).

Your 3D passive glasses may look different than those shown below.



1. Tracked glasses: eyewear that includes polarized lenses and small reflectors to tell the system where your eyes are located
2. Clip-on glasses: tracking eyewear with clip-on polarize lenses
3. Follower glasses: eyewear without the reflectors. An observer can wear these and share your experience without interfering with the tracking

## Caring for the 3D passive glasses

**NOTE:** The 3D passive glasses are designed to fit over most standard prescription glasses.

### Cleaning the 3D passive glasses

To remove smudges and lint, clean the 3D passive glasses with the cleaning cloth included with the 3D passive glasses or with a soft, damp, lint-free cloth. The cloth can be dampened with mild cleaning agents with less than 10% alcohol.

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**⚠ CAUTION:** To prevent permanent damage to the 3D passive glasses:

Do not use paper-based towels because they can scratch the lenses.

Do not spray cleaning fluids or chemicals directly on the lenses.

Do not use ammonia-based cleaning products.

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## Handling the 3D passive glasses

The 3D passive glasses are durable but sensitive to physical pressure, and need to be handled with care. The 3D passive glasses should be held by the frame in order to avoid getting fingerprints on the lenses.

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**⚠ CAUTION:** To prevent the lenses from cracking, never twist or rotate the 3D passive glasses.

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# A Technical specifications

All specifications represent the typical specifications provided by HP component manufacturers; actual performance may vary.

Specifications	
Video Input Terminal:	DisplayPort DVI
Display weight:	7.7 kg (17 lbs)
Display Type:	LCD
Viewable Image Size:	60 cm (23.6 in) diagonal
Graphics Resolution:	1920 x 1080 @ 120 Hz
3D Glasses	3D Passive Glasses
Temperature:	10° to 40° C (50° to 104° F)
Humidity:	10% to 80%, non-condensing (dry location)

## Preset video modes

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

Preset	Resolution	Horizontal Frequency (kHz)	Vertical Frequency (Hz)
1	640 x 480	31.469	59.94
2	720 x 400	31.469	70.087
3	800 x 600	37.879	60.317
4	1024 x 768	48.363	60.004
5	1280 x 720	45.00	60.00
6	1280 x 1024	63.98	60.02
7	1440 x 900	55.94	59.89
8	1680 x 1050	65.29	60.00
9	1920 x 1080	67.50	60.00





# B Troubleshooting

## Solving common problems

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

Problem	Solution
Power button LED is not on.	Make sure that the Power button is on, and the power cord is connected to a grounded power outlet and to the display.
Power source LED is not on.	The display is not receiving power. Contact your authorized HP service provider to replace the power adapter.
Screen is blank.	Connect the power cord. Turn on the power. Connect the video cable properly. See <a href="#">Setting up the display on page 7</a> for more information. Press a key on the keyboard or move the mouse to turn off the screen-blanking utility.
Check Video Cable appears on screen.	Connect the appropriate video cable (DisplayPort or DVI) between the computer and display. Be sure that the computer power is off while connecting the video cable.
Picture is fuzzy and has ghosting or shadowing problem.	Make sure that you are not using an extension cable or switch box. HP recommends plugging the display directly into the graphics card output connector on the back of your computer.
Unable to set the display to the optimal resolution.	Make sure that the graphics card supports the optimal resolution. Make sure that the latest supported driver is installed for the graphics card. For HP and Compaq systems, you can download the latest graphics driver for your system from: <a href="http://www.hp.com/support">http://www.hp.com/support</a> . For other systems, refer to the website for your graphics card.
Screen is black or displaying at a lower resolution while displaying high-definition (HD) content.	Check if your display and computer support HDCP. Refer to <a href="#">High-bandwidth Digital Content Protection (HDCP) on page 11</a> or <a href="http://www.hp.com/support">http://www.hp.com/support</a> .
No Audio.	Make sure that the speaker audio cable and USB power cable are connected directly to the computer. <b>NOTE:</b> External speakers are not included with the display.
No Plug and Play.	In order for the Plug and Play feature of the display to work, you need a computer and graphics card that are compatible with Plug and Play. Check with your computer manufacturer. Check the video cable on the display, and make sure that none of the pins are bent. Make sure that the display drivers are installed. Refer to <a href="#">Installing System Software Installer on page 17</a> for more information. Display drivers are also available at: <a href="http://www.hp.com/support">http://www.hp.com/support</a> .
Picture bounces, flickers, or wave pattern is present in the picture.	Move electrical devices that might cause electrical interference as far away from the display as possible. Use the maximum refresh rate that your display is capable of at the resolution that you are using.
Display is always in sleep mode (amber LED).	Power to the computer should be turned on. The computer graphics card should be snugly seated in its slot. Check that the display video cable is properly connected to the computer.

<b>Problem</b>	<b>Solution</b>
	<p data-bbox="555 218 1238 247">Inspect the display video cable, and make sure that none of the pins are bent.</p> <p data-bbox="555 264 1410 319">Check that your computer is operational: Press the Caps Lock key and observe the Caps Lock LED found on most keyboards. The LED should either turn on or off after hitting the Caps Lock key.</p>
<p data-bbox="245 340 466 399">Cannot view 3D content properly.</p>	<p data-bbox="555 340 1088 369">Install the 3D software included on the disc with the display.</p> <p data-bbox="555 386 1407 470">Use the 3D Passive Glasses included with the display. The glasses must be 3D Passive Glasses to view 3D content. The 3D passive glasses are designed to work with the 3D filter attached to the surface of the display.</p> <p data-bbox="555 487 970 516">Adjust the display's tilt and your viewing angle.</p> <p data-bbox="555 533 944 562">Some people are unable to view 3D content.</p>
<p data-bbox="245 575 507 659">I can see a swirling oil-like pattern on the display when the display is turned off.</p>	<p data-bbox="555 575 1426 634">This is caused by the interference of external light in the air layer between the LCD surface and the 3D filter. The pattern becomes almost invisible when you turn on the power again.</p>

# Frequently asked 3D troubleshooting questions

Question	Answer
Why am I unable to see 3D content?	<p>If you are watching in 3D mode and cannot see 3D content, HP recommends that you not use the 3D passive glasses. Refer to the information below and <a href="#">3D safety information on page 22</a>. Consult a physician if you suspect a physical problem seeing stereoscopic 3D.</p> <ul style="list-style-type: none"><li>You may be trying to watch 3D content in 2D mode.</li><li>You may be sitting too far from the computer display. You should be approximately <b>60 to 70 centimeters</b> (24 to 28 inches) from the display when viewing 3D content.</li></ul> <p><b>NOTE:</b> Depending on your viewing angle, the operational distance from the display can vary.</p>
Can I play stereoscopic 3D games on my computer?	<p>Yes, you can play stereo 3D games on your computer.</p> <p><b>NOTE:</b> Games are not included with the software and must be purchased separately.</p>
Can I wear the 3D passive glasses to a 3D movie in a movie theater?	<p>The 3D passive glasses are not guaranteed to work optimally in any other 3D environment.</p>
Can I wear my 3D passive glasses over my prescription glasses?	<p>Yes. The 3D passive glasses are designed to fit over most prescription glasses. If you normally wear glasses when viewing the computer screen, keep them on and put the 3D passive glasses on over your eyewear.</p>
How do I clean my 3D passive glasses?	<p>Use a soft, damp, lint-free cloth to clean your 3D passive glasses. Refer to <a href="#">Caring for the 3D passive glasses on page 23</a> for more information.</p>
How close do I need to be to the computer to view 3D content?	<p>The effective range is approximately <b>60 to 70 centimeters</b> (24 to 28 inches) from the computer display. Depending on the viewing angle, the operational distance from the display can vary.</p>
Can I use the 3D passive glasses in bright sunlight next to a window?	<p>The stereoscopic 3D effect works best in a darkened room.</p>
Where can I find extra 3D passive glasses?	<p>Two sets of 3D passive glasses are included with the display. Extra 3D passive glasses can be purchased at your local electronics retail store. Note that there are several types of 3D passive glasses on the market. For optimal 3D viewing of 3D content on this display, purchase 3D passive glasses compatible with TN screens. For more information or assistance go to <a href="http://www.hp.com/support">http://www.hp.com/support</a>.</p>

## Getting support from HP

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 display.

## 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 display.

### **Have the following information available when you call:**

- Display model number (located on label on back of display)
- Display serial number (located on label on back of display)
- Purchase date on invoice
- Conditions under which the problem occurred
- Hardware configuration
- Name and version of hardware and software you are using

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# C Accessibility

HP designs, produces, and markets products and services that can be used by everyone, including people with disabilities, either on a stand-alone basis or with appropriate assistive devices.

## Supported assistive technologies

HP products support a wide variety of operating system assistive technologies and can be configured to work with additional assistive technologies. Use the Search feature on your device to locate more information about assistive features.



**NOTE:** For additional information about a particular assistive technology product, contact customer support for that product.

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## Contacting support

We are constantly refining the accessibility of our products and services and welcome feedback from users. If you have an issue with a product or would like to tell us about accessibility features that have helped you, please contact us at (888) 259-5707, Monday through Friday, 6 a.m. to 9 p.m. Mountain Time. If you are deaf or hard-of-hearing and use TRS/VRS/WebCapTel, contact us if you require technical support or have accessibility questions by calling (877) 656-7058, Monday through Friday, 6 a.m. to 9 p.m. Mountain Time.



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