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You can read the recommendations in the user guide, the technical guide or the installation guide for COMPAQ 2310. You'll find the answers to all your questions on the COMPAQ 2310 in the user manual (information, specifications, safety advice, size, accessories, etc.). Detailed instructions for use are in the User's Guide.

**User manual COMPAQ 2310**  
**User guide COMPAQ 2310**  
**Operating instructions COMPAQ 2310**  
**Instructions for use COMPAQ 2310**  
**Instruction manual COMPAQ 2310**



1910, 2010, 2210, 2310, 2510, and 2710  
LCD Monitors

User Guide



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**Manual abstract:**

*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 Hewlett-Packard Company. Second Edition (January 2010) Document Part Number: 594300-002 About*

*This Guide This guide provides information on setting up the monitor, installing drivers, using the on-screen display menu, troubleshooting 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. iii iv About This Guide Table of contents 1 Product Features ....*

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See "Installing the Monitor" in this chapter. 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. You need a Phillips screwdriver for preparing the monitor for wall-mounting.



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You may need a straight-slot screwdriver to secure some cables.

**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. **NOTE:** For displays with glossy bezels the user should consider the placement of the display as the bezel may cause disturbing reflections from surrounding light and bright surfaces. **Unpacking the Monitor** 7 **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. **Figure 3-1** Unfolding the monitor 2. Grip the base near where it attaches to the monitor with one hand and lift the top part of the monitor until it is unfolded into the desired position. **Figure 3-2** Unfolding the monitor 8

**Chapter 3 Setting Up the Monitor** 3. Lift the monitor to an upright position and place on a flat, stable surface. **Figure 3-3** Monitor in upright position **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. 3. 4. Disconnect the power cable and any other cables from the monitor. Place the monitor face down on a flat, protected surface. Remove the four screws that fasten the monitor base to the monitor. **Figure 3-4** Location of screws securing base to monitor **Installing the Monitor** 9 5. Slide the base away from the bottom of the monitor. **Figure 3-5** Sliding the base away from the monitor 6.

Remove the square plate on the back of monitor. Use a coin at the base of the plate to pry it loose. **Figure 3-6** Removing the plate from the back of the monitor 10 **Chapter 3 Setting Up the Monitor** 7. Four threaded holes are exposed. These holes are for screws to attach the swing arm or other mounting fixture to the back of the monitor.

**Figure 3-7** Threaded holes for attaching wall mount 8. 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. 9. Attach a swing arm or other mounting fixture.

**Connecting Monitor Cables** **Connecting the VGA (Analog) Cable or DVI-D (Digital) Cable or HDMI Cable** Use a VGA video cable, DVI-D cable or HDMI 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 (provided with select models) 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. **Connecting Monitor Cables** 11 2. To connect the

DVI-D cable (provided with 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 that is either integrated or installed. The monitor DVI-D connector and cable are included.

**Figure 3-8** Connecting the VGA or a DVI-D cable - 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. 3. **Connecting the HDMI Cable** (provided with select models) Connect one end of the HDMI cable (not provided) to the back of the monitor and the other end to a computer with an HDMI connector. **Figure 3-9** Connecting the HDMI cable **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 Blu-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 12 **Chapter 3 Setting Up the Monitor** playing high-definition protected content. Your computer graphics card and monitor must both support HDCP to display protected content. **Connecting the Audio Cable** Connect the built-in monitor speakers to the computer by using the audio cable, as shown in the following illustration: **Figure 3-10** Connecting the audio cables - connector locations may vary **Connecting the Audio Cable** 13 **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 Specifications** on page 31 (**Appendix B**) for additional information. **Figure 3-11** Connecting the power cable 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. 14 **Chapter 3 Setting Up the Monitor** 2. Adjust the tilt by moving the top edge of the monitor either toward or away from you, without touching the screen. **Figure 3-12** Tilt adjustment **Adjusting the Swivel** The monitor allows a usable range of motion with the swivel feature. **Figure 3-13** Swivel adjustment **CAUTION:** To avoid breakage or other damage, avoid applying pressure to the LCD screen while swiveling it or changing the tilt. **Adjusting the Swivel** 15 **Keyboard Parking** If you need more space on your desktop, place the keyboard under the monitor when not in use. 16 **Chapter 3 Setting Up the Monitor** 4 **Operating the Monitor** **CD Software and Utilities** The CD that is included with this monitor contains drivers and software that you can install on your computer.



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*Installing Drivers* If you determine that you need to update the drivers, you can install the monitor driver INF and ICM files from the CD, or download them from the Internet.

*Installing the monitor driver software from the CD* To install the monitor driver software from the CD: 1. 2. 3. 4. 5. Insert the CD in your computer CD drive. The CD menu appears. Select the language. Click Install Monitor Driver Software. Follow the on-screen instructions.

Ensure that the proper resolutions and refresh rates appear in the Display Control Panel settings. Refer to the Windows® operating system documentation for more information. NOTE: You might need to install the digitally signed monitor drivers (INF or ICM files) manually from the CD, in case of an installation error. Refer to the "Driver Software Readme" file on the CD for instructions (in English only). Downloading updated drivers from the Internet To download the latest version of drivers and software files from the HP Support site: 1.

2. 3. 4. 5. 6.

Refer to: <http://www.hp.com/support>. Select your country/region. Select Download Drivers and Software. Enter the model number of your monitor. The software download pages for your monitor are displayed. Download and install the driver and software files by following the instructions on the download pages. Ensure that your system meets the requirements. CD Software and Utilities 17 Using the Auto Adjustment Function You can easily optimize the screen performance for the VGA input by using the Auto/OK button on the monitor and the auto adjustment pattern software on the CD provided.

Do not use this procedure if your monitor is using a DVI or HDMI input. If your monitor is using a VGA input, this procedure can correct the following image-quality conditions: Fuzzy or unclear focus Ghosting, streaking, or shadowing effects Faint vertical bars Thin, horizontal scrolling lines Off-center picture CAUTION: Burn-in image damage may occur on monitors that display the same static image onscreen for a prolonged period of time (12 consecutive hours of non-use). To avoid burn-in image damage on your 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. To use the auto adjustment feature: 1. 2. Allow the monitor to warm up for 20 minutes before adjusting. Press the Auto/OK button on the monitor front panel. 3. 4.

5. 6. You can also press the Menu button, and then select Image Control, followed by Auto Adjustment from the OSD menu. If the result is not satisfactory, continue with the procedure. Insert the CD in your computer CD drive.

The CD menu displays. Select the language. Select Open Auto Adjustment Software. The setup test pattern displays. @@@@ Opens, selects, or exits the OSD menu.

@@@@@ 1. 2. 3. @ To access the OSD menu, press the Menu button. The OSD Main Menu displays. @ Then press the Auto/OK button to select the highlighted function. @@@@ 4. 5. 6. To adjust the scale of a selected item, press the + or - button.

Select Save and Return. @ Press the Menu button to exit the OSD. @@@@ This Save and Return option is active only if you change a menu item. @ Adjusts the contrast level of the screen. Selects the screen color. @ 9300 K 6500 K sRGB Changes to slightly blueish white. Changes to slightly reddish white. @@@@ G -- Sets your own green color levels. @ Also enables or disables the ambient light sensor (select models). @@@@ Adjusting the Clock will also change the horizontal screen image (VGA input only).

Adjusts the focus of the display. This adjustment allows you to remove any horizontal noise, and clear or sharpen the image of characters (VGA input only).

Adjusts the horizontal position of the picture (VGA input only). Adjusts the vertical position of the picture (VGA input only). Selects the method on how displayed information on the monitor will be formatted.

Select: Fill to Screen - image fills the entire screen and may look distorted or elongated because of nonproportional scaling of height and width. Fill to Aspect Ratio - image is sized to fit the screen and maintains proportional image. Clock Phase Horizontal Position Vertical Position Custom Scaling Sharpness (VGA only) Adjusts the screen image to look sharper or soft. Using the On-Screen Display (OSD) 21 Icon Main Menu Options Sub-menu Options Video OverDrive Description Reduces motion blur in video and fast moving games. Sets the OverDrive feature on or off; the default setting is Off.

(select models) Displays the status of the Dynamic Contrast Ratio (DCR) setting. DCR automatically adjusts the balance between white and black levels to provide you with an optimal image. Select: On Off The factory default is On or Off, depending on the model. Dynamic Contrast Ratio OSD Control

Horizontal OSD Position Adjusts the position of the OSD menu on the screen. Changes the viewing position of the OSD menu to the left or right area of the screen. The factory default range is 50. Changes the viewing position of the OSD menu to the top or bottom area of the screen. The factory default range is 50. Adjust to view the background information through the OSD. Sets the time in seconds that the OSD is visible after the last button is pressed.

The factory default is 30 seconds. Selects the Landscape or Portrait position. The factory default is Landscape. (select models) Selects the power-management features of the monitor. Power Saver Enables the power saving feature (see "Power-Saver Feature" in this chapter). Select: On Off The factory default is On.

Power-On Recall Restores power to the monitor following an unexpected removal of power. Select: On Off The factory default is On. Vertical OSD Position OSD Transparency OSD Timeout Rotate OSD Management 22 Chapter 4 Operating the Monitor Icon Main Menu Options Sub-menu Options Mode Display

Description Displays the resolution, refresh rate, and frequency information on the screen each time the OSD Main Menu is accessed. Select: On Off The factory default is On or Off, depending on the model.

Monitor Status Displays the operating status of the monitor each time the monitor is powered on. Select the location at which to display the status: Top Middle Bottom Off The factory default is Top or Off, depending on the model. DDC/CI Support Allows the computer to control some OSD menu features such as Brightness, Contrast, and Color Temperature. Select: On Off The factory default is On. Bezel Power LED Turns the light (LED) in the Power button on and off.

When set to off, the light will remain off at all times. Adjusts the volume level. Provides a self-test for the speakers. Volume Speaker Self-Test (HDMI only) Using the On-Screen Display (OSD) 23 Icon Main Menu Options Sub-menu Options Sleep Timer Description Provides the timer-adjustment menu options:

Set Current Time -- Sets the current time in hours and minutes.



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*Set Sleep Time -- Sets the time you want to place the monitor in sleep mode.*

*Set On Time -- Sets the time you want the monitor to wake up from sleep mode. Timer -- Sets the Sleep Timer feature on or off; the default setting is Off. Sleep Now -- Immediately sets the monitor to enter sleep mode. Language Selects the language in which the OSD menu is displayed. The factory default is English. Selects and displays important information about the monitor. Current Settings Recommended Settings Serial Number Provides the current input video mode. Provides the recommended resolution mode and refresh rate for the monitor. Reports the serial number of the monitor. The serial number is needed if contacting HP technical support.*

*Reports the firmware version of the monitor. Reports the total hours of backlight operation. For service support, go to: <http://www.hp.com/support> Returns settings to factory defaults. Selects the video input signal. VGA is the factory default. DVI HDMI VGA Selects DVI as the video input signal. Selects HDMI as the video input signal. (select models) Selects VGA as the video input signal.*

*Information Version Backlight Hours Service Support Factory Reset Source Control 24 Chapter 4 Operating the Monitor Icon Main Menu Options Sub-menu Options Default Source Description Selects the default or primary video input signal when the monitor is connected to two active and valid video sources. The monitor will automatically determine the video format. Turns the system's automatic video signal input to On or Off. The factory default is On. Auto Switch Source Selecting Video Input Connectors The input connectors are: VGA connector (analog) DVI-D connector (digital) (select models) HDMI connector (select models) The monitor automatically determines which inputs have valid video signals, and displays the image.*

*You can connect the VGA cable, the DVI-D cable, or both. If both cables are installed, the default input selection is DVI. The HDMI cable is in place of the DVI-D cable. The source of input can be switched using the Source Control option in the OSD menu. Switching from a VGA to an HDMI input source may take several seconds.*

*Identifying Monitor Conditions Special messages appear on the monitor screen for the following monitor conditions: Input Signal Out of Range -- Indicates the monitor does not support the video card's input signal because its resolution or refresh rate are set higher than the monitor supports. Change your video card settings to a lower resolution or refresh rate. Restart your computer for the new settings to take effect. Monitor Going to Sleep -- Indicates the screen display is entering a sleep mode. The speakers are turned off in sleep mode. 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. Check Video Cable -- Indicates a video input cable is not properly connected to the computer or monitor.*

*OSD Lock-out -- 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 appears for 10 seconds. Selecting Video Input Connectors 25 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. Dynamic Contrast Ratio ONIndicates DCR is applied when Movie mode is selected from the Quick View options. Dynamic Contrast Ratio OFFIndicates DCR has been turned off when the monitor is changed to another viewing mode. No Input Signal -- Indicates the monitor is not receiving a video signal from the computer on the monitor video input connector. Check to see if the computer or input signal source is off or in the power-saver mode. Auto Adjustment in Progress -- Indicates the auto adjustment function is active. See "Adjusting Screen Quality" in this chapter.*

*Adjusting Screen Quality 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 on the CD. See "Using the Auto Adjustment Function" in this chapter. If you want additional image quality improvement, use the Clock and Clock 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. Clock 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.*

*2. 3. 4. Allow the monitor to warm up for 20 minutes before adjusting. Display the adjustment-pattern application provided on the CD. Access the OSD menu, then select Image Control. Set the main Clock settings correctly first, because the Clock Phase settings depend on the main Clock settings. When adjusting the Clock and Clock 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. 26 Chapter 4 Operating the Monitor Power-Saver Feature When the monitor is in normal operating mode, the Power light is green and the monitor uses the normal watts of power.*

*For power usage, refer to "Technical Specifications" (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. Power-Saver Feature 27 A Troubleshooting Solving Common Problems The following table lists possible problems, the possible cause of each problem, and the recommended solutions: Problem Power LED is not on.*



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*Solution Make sure the Power button is on, and the power cord is properly connected to a grounded power outlet and to the monitor. Select Management in the OSD menu, and then select Bezel Power LED. Check if the Bezel Power LED option is set to Off and, if so, set to On mode. Screen is blank. Connect the power cord.*

*Turn on the power. Connect the video cable properly. See Setting Up the Monitor on page 7 for more information. Press a key on the keyboard or move the mouse to turn off the screen-blanking utility. Image appears blurred, indistinct, or too dark.*

*Image is not centered. Check Video Cable appears on screen. Input Signal Out of Range appears on screen. Picture is fuzzy and has ghosting, shadowing problem. Press the Auto/OK button on the monitor front panel. If this does not correct the image, press the Menu button to open the OSD menu, and adjust the brightness and contrast scales. Press the Menu button to access the OSD menu. Select Image Control, and then select Horizontal Position or Vertical Position to adjust the position of the image. Connect the monitor VGA or DVI-D signal cable to the VGA or DVI-D connector on the computer. Be sure that the computer power is off while connecting the video cable.*

*Restart your computer and enter Safe Mode. Change your settings to a supported setting (see the table in "Preset Video Modes" in Technical Specifications on page 31). Restart your computer so that the new settings take effect. Adjust the contrast and brightness controls. Make sure that you are not using an extension cable or switch box. We recommend plugging the monitor directly into the graphic card output connector on the back of your computer. The auto adjustment feature might fix this problem (VGA input only). Unable to set the monitor to the optimal resolution. Make sure the graphics card supports the optimal resolution. Make sure 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: [www.hp.com/support](http://www.hp.com/support). For other systems, refer to the Web site for your graphics card. Screen is black or displaying at a lower resolution while displaying high-definition (HD) content.*

*Check if your monitor and computer support HDCP. Refer to High-Content Digital Bandwidth Protection or <http://www.hp.com/support>. 28 Appendix A Troubleshooting Problem Unable to hear audio from built-in speakers.*

*Solution Do the following: Ensure the source signal is good by using headphones at the source. Press the Menu button to access the OSD menu. Select Management, and then select Volume to adjust the volume. Turn up the volume with the Volume button. Ensure speaker volume is not muted or too low: Click the Windows start button™, Control Panel, and Hardware and Sound. Under Audio Devices and Sound, click Adjust system volume. Under Main Volume, move the slider up. If you are connected using HDMI, use the Speaker Self Test OSD Volume option to ensure that the speakers work, and thus isolate it to a potential issue with the source input. No Plug and Play. In order for the Plug and Play feature of the monitor to work, you need a computer and graphic card that are compatible with Plug and Play.*

*Check with your computer manufacturer. Check the monitor's video cable, and make sure that none of the pins are bent. Make sure that the monitor drivers are installed. Refer to "Installing Drivers" in the Operating the Monitor on page 17 chapter for more information. Monitor drivers are also available at: <http://www.hp.com/support> Picture bounces, flickers, or wave pattern is present in the picture. Move electrical devices that may cause electrical interference as far away from the monitor as possible. Use the maximum refresh rate that your monitor is capable of at the resolution that you are using. Using HDMI connection, unable to hear audio.*

*Monitor is always in sleep mode (amber LED). Ensure HDMI audio is selected as the main audio output in the operating system. To do so, click the Windows Start Button, and then click Control Panel. Click Sound, and in the Playback tab, ensure the check mark is next to the HDMI output, and click OK. The computer power switch should be in the On position.*

*The computer graphic card should be snugly seated in its slot. Check that the monitor video cable is properly connected to the computer. Inspect the monitor video cable, and make sure that none of the pins are bent. 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.*

*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. Getting Support from hp.com 29 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.*

*30 Appendix A Troubleshooting B Technical Specifications All specifications represent the typical specifications provided by HP's component manufacturers; actual performance may vary either higher or lower. HP LCD Monitors Face treatment: Glare polarizer with hard coating Input terminal: VGA connector DVI-D 24pin D-type connector (select models) HDMI connector (select models) Table B-1 Model 1910m Specifications: Display Type: Viewable Image Size: Tilt Maximum Weight (unpacked): Dimensions (h x w x d): Maximum Graphics Resolution: Optimum Graphics Resolution: Text Mode: Dot Pitch: Horizontal Frequency (analog mode): Vertical Frequency (analog mode): Environmental Requirements Temperature (independent of altitude) Operating Temperature: Non-Operating Humidity: Relative Humidity (non-condensing): 5° to 35° C (41° to 95° F) 20° to 60° C (4° to 140° F) TFT LCD active matrix 47.0 cm (18.5 in.) diagonal 5° to +25° 4.05 kg (8.9 lb) 355 x 470 x 184 mm (14.0 x 18.0 x 7.2 in.)*

*) 1366 x 768 @ 60 Hz analog mode 1366 x 768 @ 60 Hz analog mode 720 x 400 0.30 x 0.30 mm 24 to 83 kHz 50 to 76 Hz HP LCD Monitors 31 Table B-1 Model 1910m (continued) Specifications: Operating Humidity: Non-Operating Humidity: Power Source: Power Consumption: Sleep Power Consumption: 20% to 80% 5% to 95% 100240 V AC (ca), 50/60 Hz 28.*



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5 watts (W) maximum <2 watts (W) typical Table B-2 Models 2010f/i/m Specifications: Display Type: Viewable Image Size: Tilt Maximum Weight (unpacked): Dimensions (h x w x d): Maximum Graphics Resolution: Optimum Graphics Resolution: Text Mode: Dot Pitch: Horizontal Frequency (analog mode): Vertical Frequency (analog mode): Environmental Requirements Temperature (independent of altitude) Operating Temperature: Non-Operating Humidity: Relative Humidity (non-condensing): Operating Humidity: Non-Operating Humidity: Power Source: Power Consumption: Sleep Power Consumption: 20% to 80% 5% to 95% 100240 V AC (ca), 50/60 Hz 35 watts (W) maximum <1 watts (W) typical 5° to 35° C (41° to 95° F) 20° to 60° C (4° to 140° F) TFT LCD active matrix 50.8 cm (20 in.)

) diagonal 5° to +25° 5.36 kg (11.8 lb) 502.6 x 371.8 x 183.

1 mm (19.8 x 14.6 X 7.2 in.) 1600 x 900 @ 60 Hz analog mode 1600 x 900 @ 60 Hz analog mode 720 x 400 0.2768 x 0.2768 mm 24 to 83 kHz 50 to 76 Hz

Table B-3 Models 2210i/m Specifications: Display Type: Viewable Image Size: TFT LCD active matrix 55.68 cm (21.53 in.) diagonal 32 Appendix B Technical Specifications Table B-3 Models 2210i/m (continued) Specifications: Tilt Maximum Weight (unpacked): Dimensions (h x w x d): Maximum Graphics Resolution: Optimum Graphics Resolution: Text Mode: Dot Pitch: Horizontal Frequency (analog mode): Vertical Frequency (analog mode): Environmental Requirements Temperature (independent of altitude) Operating Temperature: Non-Operating Humidity: Relative Humidity (non-condensing): Operating Humidity: Non-Operating Humidity: Power Source: Power Consumption: Sleep Power Consumption: 20% to 80% 5% to 95% 100240 V AC (ca), 50/60 Hz 56 watts (W) maximum <2 watts (W) typical 5° to 35° C (41° to 95° F) 20° to 60° C (4° to 140° F) 5° to +25° 5.

52 kg (12.2 lb) 392 x 536 x 200 mm (15.4 x 21.1 x 7.9 in.) 1920 x 1080 @ 60 Hz analog mode 1920 x 1080 @ 60 Hz analog mode 720 x 400 0.2480 x 0.2480 mm 24 to 94 kHz 50 to 76 Hz Table B-4 Models 2310i/m Specifications: Display Type: Viewable Image Size: Tilt Maximum Weight (unpacked): Dimensions (h x w x d): Maximum Graphics Resolution: Optimum Graphics Resolution: Text Mode: Dot Pitch: Horizontal Frequency (analog mode): Vertical Frequency (analog mode): Environmental Requirements TFT LCD active matrix 23.0 in. (58.

42 cm) diagonal 5° to +25° 21.6 lb (9.8 kg) 16.2 x 22.6 x 7.

9 in. (412 x 573 x 200 mm) 1920 x 1080 @ 60 Hz analog mode 1920 x 1080 @ 60 Hz analog mode 720 x 400 0.265 x 0.265 mm 24 to 94 kHz 50 to 76 Hz HP LCD Monitors 33 Table B-4 Models 2310i/m (continued) Specifications: Temperature (independent of altitude) Operating Temperature: Non-Operating Humidity: Relative Humidity (non-condensing): Operating Humidity: Non-Operating Humidity: Power Source: Power Consumption: Sleep Power Consumption: 20% to 80% 5% to 95% 100240 V AC (ca), 50/60 Hz 56 watts (W) maximum <2 watts (W) typical 5° to 35° C (41° to 95° F) 20° to 60° C (4° to 140° F) Table B-5 Model 2510i Specifications: Display Type: Viewable Image Size: Tilt Maximum Weight (unpacked): Dimensions (h x w x d): Maximum Graphics Resolution: Optimum Graphics Resolution: Text Mode: Dot Pitch: Horizontal Frequency (analog mode): Vertical Frequency (analog mode): Environmental Requirements Temperature (independent of altitude) Operating Temperature: Non-Operating Humidity: Relative Humidity (non-condensing): Operating Humidity: Non-Operating Humidity: Power Source: Power Consumption: Sleep Power Consumption: 20% to 80% 5% to 95% 100240 V AC (ca), 50/60 Hz 60 watts (W) maximum <2 watts (W) typical 5° to 35° C (41° to 95° F) 20° to 60° C (4° to 140° F) TFT LCD active matrix 63.5 cm (25 in.)

) diagonal 5° to +25° 8.1 Kg (17.9 lb) 436 x 618 x 201 mm (17.2 x 24.3 x 7.9 in.) 1920 x 1080 @ 60 Hz analog mode 1920 x 1080 @ 60 Hz analog mode 720 x 400 0.288 x 0.288 mm 24 to 94kHz 50 to 76 Hz 34 Appendix B Technical Specifications Table B-6 Model 2710m Specifications: Display Type: Viewable Image Size: Tilt Maximum Weight (unpacked): Dimensions (h x w x d): Maximum Graphics Resolution: Optimum Graphics Resolution: Text Mode: Dot Pitch: Horizontal Frequency (analog mode): Vertical Frequency (analog mode): Environmental Requirements Temperature (independent of altitude) Operating Temperature: Non-Operating Humidity: Relative Humidity (non-condensing): Operating Humidity: Non-Operating Humidity: Power Source: Power Consumption: Sleep Power Consumption: 20% to 80% 5% to 95% 100240 V AC (ca), 50/60 Hz 120 watts (W) maximum <2 watts (W) typical 5° to 35° C (41° to 95° F) 20° to 60° C (4° to 140° F) TFT LCD active matrix 68.58 cm (27 in.)

) diagonal 5° to +25° 9.6 Kg (21.2 lb) 469 x 671 x 214 mm (18.5 x 26.4 x 8.4 in.) 1920 x 1080 @ 60 Hz analog mode 1920 x 1080 @ 60 Hz analog mode 720 x 400 0.265 x 0.265 mm 24 to 94 kHz 48 to 76 Hz Preset Video Modes The monitor automatically recognizes many preset video input modes that will appear properly sized and centered on the screen. Table B-7 Factory Preset Video Input Modes, 1910m Preset 1 2 3 4 5 6 Resolution 640 x 480 720 x 400 800 x 600 1280 x 720 1024 x 768 1280 x 960 Horizontal Frequency (kHz) 31.

47 31.47 37.88 45.00 48.36 60.

00 Vertical Frequency (Hz) 59.94 70.09 60.32 60.00 60.00 60.02 59.

00 60.00 Preset Video Modes 35 Table B-7 Factory Preset Video Input Modes, 1910m (continued) Preset 7 8 Resolution 1280 x 1024 1366 x 768 Horizontal Frequency (kHz) 63.98 47.71 Vertical Frequency (Hz) 60.02 59.79 Table B-8 Factory Preset Video Input Modes, 2010f/i/m Preset 1 2 3 4 5 6 7 8 Resolution 640 x 480 720 x 400 800 x 600 1024 x 768 1280 x 720 1280 x 1024 1440 x 900 1600 x 900 Horizontal Frequency (kHz) 31.47 31.47 37.88 48.36 45.

00 63.98 55.93 55.54 Vertical Frequency (Hz) 59.94 70.09 60.32 60.00 60.00 60.02 59.

88 59.98 Table B-9 Factory Preset Video Input Modes, 2210i/m; \2310i/m; 2510i; 2710m Preset 1 2 3 4 5 6 7 8 9 10 11 Resolution 640 x 480 720 x 400 800 x 600 1024 x 768 1280 x 720 1280 x 960 1280 x 1024 1440 x 900 1600 x 1200 1680 x 1050 1920 x 1080 Horizontal Frequency (kHz) 31.47 31.47 37.88 48.

36 45.00 60.00 63.98 55.93 75.

00 65.29 67.50 Vertical Frequency (Hz) 59.94 70.09 60.32 60.00 60.00 60.00 60.02 59.

88 60.00 60.00 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. 36 Appendix B Technical Specifications A pixel consists of one red, one green, and one blue subpixel.



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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 and pixel policy, refer to the HP Web site at: <http://www.hp.com/support>.

To find pixel policy information on the HP Web site, type in "HP Pixel Policy" in the search box and press Enter. LCD Monitor Quality and Pixel Policy 37 C Agency Regulatory Notices Federal Communications Commission Notice This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures: Reorient or relocate the receiving antenna. Increase the separation between the equipment and the receiver. Connect the equipment into an outlet on a circuit different from that to which the receiver is connected. Consult the dealer or an experienced radio or television technician for help.

Modifications The FCC requires the user to be notified that any changes or modifications made to this device that are not expressly approved by Hewlett Packard Company may void the user's authority to operate the equipment. Cables Connections to this device must be made with shielded cables with metallic RFI/EMI connector hoods to maintain compliance with FCC Rules and Regulations. Declaration of Conformity for Products Marked with the FCC Logo (United States Only) This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: 1. 2.

This device may not cause harmful interference. This device must accept any interference received, including interference that may cause undesired operation. For questions regarding the product, contact: 38 Appendix C Agency Regulatory Notices Hewlett Packard Company P. O. @ @ O.

@ @ @ @ @ \*Notified body number (used only if applicable -- refer to the product label). Canadian Notice 39 Hewlett-Packard GmbH, HQ-TRE, Herrenberger Strasse 140, 71034 Boeblingen, Germany The official EU CE declaration of conformity for this device may be found at <http://www.hp.com/go/certificates>. German Ergonomics Notice HP products which bear the "GS" approval mark, when forming part of a system comprising HP brand computers, keyboards and monitors that bear the "GS" approval mark, meet the applicable ergonomic requirements.

The installation guides included with the products provide configuration information. Japanese Notice Korean Notice Power Cord Set Requirements The monitor power supply is provided with Automatic Line Switching (ALS). This feature allows the monitor to operate on input voltages between 100/120V or 200-240V. The power cord set (flexible cord or wall plug) received with the monitor meets the requirements for use in the country where you purchased the equipment. If you need to obtain a power cord for a different country, you should purchase a power cord that is approved for use in that country.

The power cord must be rated for the product and for the voltage and current marked on the product's electrical ratings label. The voltage and current rating of the cord should be greater than the voltage and current rating marked on the product. In addition, the cross-sectional area of the wire must be a minimum of 0.75 mm<sup>2</sup> or 18 AWG, and the length of the cord must be between 6 feet (1.8 m) and 12 feet (3.

6 m). If you have questions about the type of power cord to use, contact an authorized HP service provider. A power cord should be routed so that it is not likely to be walked on or pinched by items placed upon it or against it. Particular attention should be paid to the plug, electrical outlet, and the point where the cord exits from the product. 40 Appendix C Agency Regulatory Notices Japanese Power Cord Requirements For use in Japan, use only the power cord received with this product. CAUTION: Do not use the power cord received with this product on any other products. Product Environmental Notices Materials

Disposal This HP product contains mercury in the fluorescent lamp in the display LCD that might require special handling at end-of-life. Disposal of this material can be regulated because of environmental considerations. For disposal or recycling information, contact the local authorities or the Electronic Industries Alliance (EIA) <http://www.eiae.org>.

org. Disposal of Waste Equipment by Users in Private Household in the European Union This symbol on the product or on its packaging indicates that this product must not be disposed of with your household waste. Instead, it is your responsibility to dispose of your waste equipment by handing it over to a designated collection point for the recycling or waste electrical and electronic equipment. The separate collection and recycling of your waste equipment at the time of disposal will help to conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste equipment for recycling, please contact the local city office, the household waste disposal service or the shop where you purchased the product. Chemical Substances HP is committed to providing our customers with information about the chemical substances in our products as needed to comply with legal requirements such as REACH (Regulation EC No 1907/2006 of the European Parliament and Council). A chemical information report for this product can be found at <http://www.hp.com/go/reach>. Product Environmental Notices 41 HP Recycling Program HP encourages customers to recycle used electronic hardware, HP original print cartridges, and rechargeable batteries.

For more information about recycling programs, go to <http://www>.



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*hp.com/ recycle. Restriction of Hazardous Substances (RoHS) A Japanese regulatory requirement, defined by specification JIS C 0950, 2005, mandates that manufacturers provide Material Content Declarations for certain categories of electronic products offered for sale after July 1, 2006. To view the JIS C 0950 material declaration for this product, visit <http://www>.*

*hp.com/gofjisc0950. 11363-2006 11363-2006 42 Appendix C Agency Regulatory Notices Turkey EEE Regulation In Conformity with the EEE Regulation EEE Yönetmeliine Uygundur Product Environmental Notices 43 .*



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