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User's Guide

Compaq V50 Color Monitor

Second Edition (October 1996)
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Compaq Computer Corporation

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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 Compaq Computer Corporation 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.

Canadian Notice

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Avis Canadien

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur les matériel brouilleur du Canada.

German Ergonomics Notice

Compaq computers, when tested with the Compaq 610, 610A, and 610T Series Monitors, were evaluated and found compliant to the requirements of ZH1/618 (German Safety Regulations for Display Work Places in the Office Sector) in the Text Mode (720 x 400) using MS-DOS Version 3.31 (or higher) and BASICA as published by Compaq Computer Corporation.

EPA Energy Star

Monitors that are marked with the Energy Star Logo meet the requirements of the EPA Energy Star program. As an Energy Star Partner, Compaq Computer Corporation has determined that this product meets the Energy Star guidelines for energy efficiency. Specific details on using the Energy Saving features can be found in the energy saver or power management section of your computer manual.

European Notice

Products with the CE Marking comply with both the EMC Directive (89/336/EEC) and the Low Voltage Directive (73/23/EEC) issued by the Commission of the European Community.

Compliance with these directives implies conformity to the following European Norms:

- EN55022 (CISPR 22) - Radio Frequency Interference
- EN50082-1 (IEC801-2, IEC801-3, IEC801-4) Electromagnetic Immunity
- EN60950 (IEC950) - Product Safety

Japanese Notice

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Introduction

The Compaq V50 Color Monitor is a microprocessor-based, intelligent scanning monitor that automatically locks in on the most common display modes.

Compaq V50 Color Monitor

Product Features

The monitor features include the following:

- 15-inch CRT with a 13.77-inch (35.0 cm) diagonal viewable image size
- Easy-to-access front panel controls
- Plug and Play capability if supported by your system
- Tilt control (image rotation) functionality
- Automatically scans all horizontal frequencies between 31.5 and 60 kHz and vertical frequencies between 50 and 100 Hz
- Supports VGA, Super VGA, and 1024 × 768 resolutions

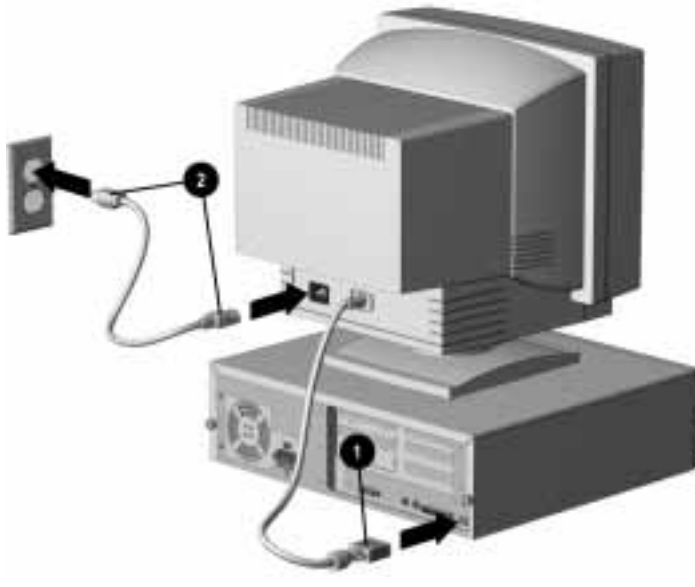
- Energy Saver feature, when activated, results in a power savings of greater than 90 percent
- Compliant with the following regulated specifications:
  - EPA Energy Star
  - European Union CE Directives
  - Swedish MPR II 1990
  - Swedish TCO 1995 on certain models

Installing the Monitor

To install the monitor, ensure that the power to the monitor, computer system, and other attached devices is turned off, then follow these steps:

1. Place the monitor in a convenient, well-ventilated location near your computer.
2. Connect the monitor signal cable ❶ to the 15-pin connector on the rear panel of the computer and tighten the screws.

IMPORTANT: Be sure the signal cable aligns with the 15-pin connector. Do not force the cable onto the connector or you may damage the signal cable.

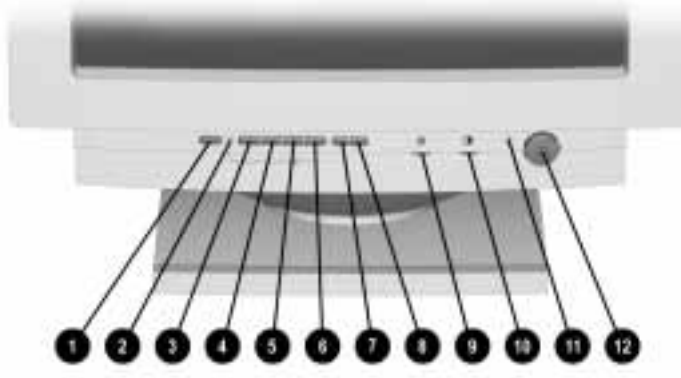


3. Connect the monitor power cord ❷ to the rear panel of the monitor, then plug the other end of the cord into an electrical outlet that is easily accessible and close to the monitor.

WARNING: This equipment is designed for connection to a grounded (earthed) outlet. The grounding type plug is an important safety feature. To avoid risk of electric shock or damage to your equipment, do not disable this feature.

Operating the Monitor

Front Control Panel



Front Control Panel

No./Icon	Control	Function
❶ ▼	Shift button	Selects and deselects secondary controls.
❷	Mode Indicator	Indicator lights up when secondary controls are active.
❸	Horizontal Position/	Moves the screen left or right.
	Trapezoid	Corrects trapezoid distortion. Adjusts the width of the upper side of the image to equal the lower side.
❹	Horizontal Size/	Adjusts the horizontal screen width.
	Pincushion	Straightens the vertical lines if the picture has pincushion or barrel distortion.

Continued

Front Panel Controls *Continued*

No./Icon	Control	Function
❺	Vertical Position/	Moves screen up or down.
	Tilt	Adjusts the screen's image rotation or tilt adjust.
❻	Vertical Size/	Adjusts the vertical height of the screen.
	Reset	Resets the monitor screen to default or factory settings.
❼	Minus button	Controls adjustments to functions ❸ through ❻.
❽	Plus button	Controls adjustments to functions ❸ through ❻.
❾	Brightness	Adjusts screen brightness by turning control to left or right.
❿	Contrast	Adjusts screen contrast by turning control to left or right.
⓫	Power switch	Turns the monitor on and off.
⓬	Power LED	1. Green indicates monitor is turned on. 2. Amber indicates energy saver levels.

NOTE: Controls ❶ through ❹ have dual functions. To make adjustments to the secondary functions on the monitor panel, press the Shift button ❷. The Mode indicator ❶ lights up when the secondary functions are active. To revert back to the primary functions (Horizontal Position, Horizontal Size, Vertical Position, and Vertical Size), press the Shift button again and the Mode indicator light goes off. The primary functions are now active and can be adjusted.

To adjust screen controls ❶ through ❹, complete the following procedures:

1. Press the Shift button ❷ to select secondary controls; otherwise, omit this step and begin at the next step.
2. Press the control button that you want to adjust.
3. Press the Minus button ❼ to decrease and adjust the control, or the Plus button ❽ to increase and adjust the control.

Display Resolutions

The display resolutions listed below are the most commonly used modes and are set as factory defaults. The monitor automatically recognizes these modes when they are requested by a software program.

Display Resolutions

Memory Channels	Resolutions
1	1024 × 768 at 60.0 kHz/75 Hz
2	1024 × 768 at 48.4 kHz/60 Hz
3	800 × 600 at 53.7 kHz/85 Hz
4	800 × 600 at 46.9 kHz/75 Hz
5	800 × 600 at 37.8 kHz/60 Hz
6	720 × 400 at 31.5 kHz/70 Hz
7	640 × 480 at 43.3 kHz/85 Hz
8	640 × 480 at 37.5 kHz/75 Hz
9	640 × 480 at 31.5 kHz/60 Hz
10	640 × 350 at 31.5 kHz/70 Hz

User Modes

Occasionally, the video controller signal may call for a mode that is not preset. This may occur for one of the following reasons:

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

If this occurs, you may need to readjust the size and centering of the monitor screen by using the on-screen display. The monitor automatically stores the new setting as a user mode, then automatically recognizes the new user mode just as it does a preset mode. Up to eight user mode settings can be stored.

Energy Saver Feature

This monitor has an energy saver feature that allows the computer to control monitor power consumption. The energy saver feature combines hardware and software components and puts the monitor into a reduced power state when it is not in use.

There are three different modes of operation:

- Full power mode
- Suspend mode
- Sleep mode

Full power mode is the normal mode of operation. The monitor goes into the suspend mode after a user-selectable period of keyboard and mouse inactivity. Sleep mode, which results in a power savings of over 90 percent, activates after a second user-selectable period of keyboard and mouse inactivity. By selecting settings in the computer's Energy Saver utility, you are able to determine the length of the inactivity period before the monitor goes into suspend or sleep mode.

The following table describes the monitor energy saver levels available during the different modes of operation.

Energy Saver Levels

Mode	Power Usage	Description
Full Power	Less than 115 watts	ON = Normal operation Power LED is green.
Suspend	Less than 15 watts	Monitor screen is blanked. High voltage is off. Heater voltage is on. Power LED turns amber. Full power mode returns quickly.
Sleep	Less than 8 watts	Monitor screen is blanked. High voltage is off. Heater voltage is off. Power LED turns amber. There is a brief warm up period before returning to full power mode.

NOTE: The energy saver features for monitors only work when the monitor is connected to a computer that has energy saver features.

The Energy Saver utility, with its energy saver features, is available under the Windows environment, and some features are available under the DOS environment. Refer to your computer manual for instructions on setting energy saver features (sometimes referred to as power management features).

Error! Main Document Only.

Care and Maintenance

This section explains how to care for and maintain your Compaq V50 Color Monitor during normal everyday use.

Protecting the Monitor

To protect your monitor from overheating and other types of damage, follow these suggestions:

- Place the monitor at least 4 inches (10 cm) away from the wall.
- Use only a power source and connection appropriate for this monitor, as indicated on the marking label/back plate.
- When you connect the monitor to an outlet or extension cord, 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.
- Install the monitor near an outlet that you can easily reach. Disconnect the product 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 using it. You can substantially increase the life expectancy of the monitor by using a screen saver program and turning off the monitor when it is not in use.
- Unplug the monitor from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.
- 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 place plants on top of the monitor. Water or dirt from the plant may fall into the vents.
- 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, and moisture. Keep the monitor away from high capacity transformers, electric motors, and other strong magnetic fields.
- In a two-monitor system, place the monitors as far apart from each other as possible to minimize interference between them.
- Do not open the monitor cabinet or attempt to service this product yourself. Adjust only those controls that are covered by the operating instructions. If the monitor is not operating properly or has been dropped or damaged, contact your Compaq authorized dealer, reseller, or service provider.

Cleaning the Monitor

To clean the monitor, follow these steps:

1. Turn off the monitor and the computer.
2. Dust the monitor by wiping the screen and the cabinet with a soft, clean cloth.

If the screen requires more than dusting, use an antistatic CRT screen cleaner.

CAUTION: Do not use benzene, thinner, or any volatile substances to clean the monitor. These chemicals may damage the cabinet finish.

Shipping the Monitor

To ship the monitor, follow these steps:

1. Turn off the monitor and the computer.
2. Disconnect the signal cable from the computer.
3. Disconnect the power cable from the electrical power outlet.
4. Unplug the power cable from the back of the monitor.
5. Place the monitor into its original box with its original packing material.

Adjusting Picture Quality

Allow the monitor to warm up before performing the following procedures. The picture image stabilizes after a warm-up period of 30 minutes.

Optimizing Contrast

To set the screen contrast to its optimum setting, set your screen to a dark background (such as the DOS prompt) before adjusting the following settings:

1. Set the brightness and contrast controls to their lowest levels.
2. Increase brightness until the background portions of the screen are visible, then slowly reduce brightness until the background is slightly extinguished.
3. Adjust contrast control to your preference.

Optimizing Focus

The default image size is preset at the factory. The front panel controls can be used to increase the screen size beyond the default setting. However, expanding the screen image beyond the default settings may degrade the focus at the outer edge of the screen.

To enhance focus, use the lowest brightness level that gives satisfactory results in your viewing environment.

NOTE: Settings that maximize contrast may not offer optimum focus, and settings that maximize focus may not offer optimum contrast.

Specifications

Compaq V50 Color Monitor		
Display		
CRT	15-in FS	38.1 cm
Type	Color	
Viewable Image Size	13.77-in diagonal	35.0 cm
Face Treatment	Tinted screen glass, with antiglare, antistatic coating, light transmission 51 to 53.5 percent. All models are MPR II 1990 compliant. Select models are TCO 1995 compliant.	
Max. Weight	29.8 lb	13.5 kg
Max. Dimensions		
Height	15.6 in	39.6 cm
Depth	15.5 in	39.3 cm
Width	14.5 in	36.9 cm
Maximum Graphics Resolution	1024 × 768 at 75 Hz Refresh Rate	
Phosphor/Dot Pitch	P22, 0.28 mm	
Text Mode	VGA or higher	
Character Display	VGA or higher	
Display Controls	Horizontal Position/Trapezoid, Horizontal Size/Pincushion, Vertical Position/Tilt, Vertical Size/Reset, Minus and Plus buttons, Contrast, Brightness, and Power switch	
Maximum Clock Rate	78 MHz	
Horizontal Frequency	31.5 to 60 kHz	
Vertical Frequency	50 to 100 Hz	

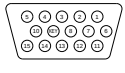
Continued

Specifications *Continued*

Environmental Requirements Temperature		
Operating	32°F to 104°F	0°C to 40°C
Humidity	20% to 90%	
Power Source	AC 90-132, 195-262 VAC, 50-60 Hz, <115 watts	
Power Consumption	<115 watts	
Inrush Current	30A Max at 120 VAC 50A Max at 220 VAC	
Input Terminal	15-pin D-type connector with cable	

Connector Pin Assignments

Signal Cable

Connector	Pin	Signal
	1	Red Video
	2	Green Video/Sync on green
	3	Blue Video
	4	Open
	5	Return
	6	Red Gnd
	7	Green Gnd
	8	Blue Gnd
	9	Reserved (No Pin)
	10	Sync Return
	11	Open
	12	*Bi-Directional Data (SDA)
	13	H-Sync/Composite Sync
	14	V-Sync
	15	*Data Clock (SCL)

* DDC Signals

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 220-240V.

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.

Power cord sets must meet the requirements of the country where you use the monitor. For more information on power cord set requirements, contact your Compaq authorized dealer, reseller or service provider.

General Requirements

The requirements listed below are applicable to all countries:

1. The length of the power cord set must be at least 5.00 feet (1.5 m) and a maximum of 9.75 feet (3.0 m).
2. All power cord sets must be approved by an acceptable accredited agency responsible for evaluation in the country where the power cord set will be used.
3. The power cord set must have a minimum current capacity of 10A and a nominal voltage rating of 125 or 250 volts AC, as required by each country's power system.
4. The appliance coupler must meet the mechanical configuration of an EN 60 320/IEC 320 Standard Sheet C13 connector, for mating with appliance inlet on the rear of the unit.

Country-Specific Requirements

Power Cord Set Requirements - By Country		
Country	**Accredited Agency**	**Applicable Note Numbers**
Australia	EANSW	1
Austria	OVE	1
Belgium	CEBC	1
Canada	CSA	2
Denmark	DEMKO	1
Finland	FIMKO	1
France	UTE	1
Germany	VDE	1
Italy	IMQ	1
Japan	JIS	3
The Netherlands	KEMA	1
Norway	NEMKO	1
Sweden	SEMKO	1
Switzerland	SEV	1
United Kingdom	BSI	1
United States	UL	2

Notes:

1. The flexible cord must be <HAR> Type HO5VV-F, 3-conductor, 1.0 mm^2 conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country where it will be used.

2. The flexible cord must be Type SJT or equivalent, No. 18 AWG, 3-conductor. The wall plug must be a two-pole grounding type with a NEMA 5-15P (15A, 125V) or NEMA 6-15P (15A 250V) configuration.

3. The appliance coupler, flexible cord, and wall plug must bear a "T" mark and registration number in accordance with the Japanese Dentori Law. The flexible cord must be Type VCT or VCTF, 3-conductor, 0.75mm^2 conductor size. The wall plug must be a two-pole grounding type with a Japanese Industrial Standard C8303 (15A, 125V) configuration.

Electrostatic Discharge

A discharge of static electricity from a finger or other conductor may damage system boards or other static sensitive devices. This type of damage may reduce the life expectancy of the device.

Preventing Electrostatic Damage

To prevent electrostatic damage, observe the following procedures.

- Avoid touching pins, leads, or circuitry.
- Be properly grounded when touching a sensitive component or assembly.

Methods of Grounding

Use one or more of the following measures when handling or installing electrostatic-sensitive parts:

- Use a wrist strap connected by a ground cord to a grounded workstation or to the computer chassis. Wrist straps are flexible straps with a minimum of 1 megohm +/- 10 percent resistance in the ground cords. To provide a proper ground, wear the strap snug against the skin.
- Use heelstraps, toestraps, or bootstraps at standing workstations. Wear the straps on both feet when standing on conductive floors or dissipating floor mats.
- Use conductive field service mats.
- Use a portable field service kit with a folding static-dissipating work mat.

IMPORTANT: For additional information on static electricity, or assistance with the installation of this product, contact your Compaq authorized dealer, reseller, or service provider.