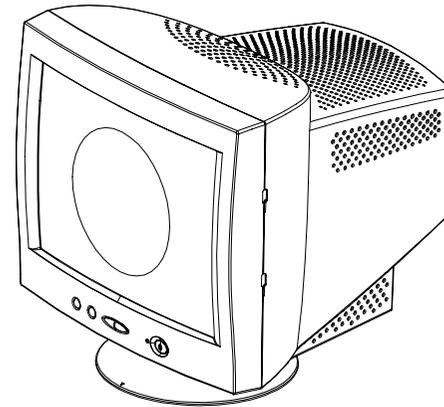




hp pavilion v70s
display
user's guide



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Introduction

Congratulations on your purchase of a Hewlett-Packard Multi-Frequency monitor. One of the most versatile monitors available today, the v70s automatically adjusts its vertical and horizontal scanning frequencies to those of your computer's graphics adapter. The v70s provides crisp text and vivid color graphic displays when used with Multi-Frequency and compatible graphics adapters (see specifications).

Precautions

To prevent electric shock do not remove screws or back cover.

There are no user-serviceable parts inside the monitor. Refer servicing to qualified service personnel.

DO NOT REMOVE THE TILT/SWIVEL BASE!

The input power source:

The monitor is designed to be Full Range from AC 100V to AC 240V.



Warning: *This appliance should be grounded.*

Always connect the display to a grounded, three-prong power outlet. Use only the factory-supplied power cord.

Do not put the monitor or other heavy objects on the power supply cord. A damaged power cord may cause fire or electric shock.

Do not insert objects into the monitor. They may cause fire or failure.

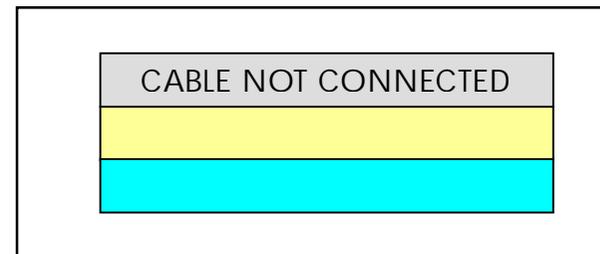
Do not allow liquids to fall into the cabinet.

- 1 To reduce eye fatigue, avoid using the display in direct sunlight or other bright lights.
- 2 Do not operate the monitor beyond the specified temperature and humidity range (see specifications).
- 3 For proper operation, keep the monitor adequately ventilated.
- 4 Keep the monitor away from transformers, motors, fans or strong magnetic fields.
- 5 If the monitor does not operate properly, turn off the power switch and then unplug the monitor.
- 6 When an irregular supply is applied, a protection circuit will turn off the monitor (the power indicator will also be turned off). If this happens, turn off the power switch and wait at least 30 seconds before turning it on again.

Features

- 1 Automatically scans horizontal frequencies ranged from 30kHz to 70kHz and vertical frequencies ranged from 50Hz to 120Hz.
- 2 Meets DPMS and NUTEK power-saving standards.
- 3 All functions can be controlled by On-Screen Display.
- 4 Plug-and-play compatibility.
- 5 Full-scan display — 15.9-inch diagonal viewable image size.
- 6 Rotation (tilt control).
- 7 Self-test — When you disconnect the signal cable from the PC, the display will produce as below:

SELF-TEST PATTERN



- 8 Color temperature selection — 3 00K / 7000K / 6500K and user adjustable.

Specifications

Power Source	AC 100-240V, 50/60Hz (Full Range)	Input Signals	
Power Consumption	1 Normal: 100W Max.	Video	Analog 0.7 Vp-p / 75 ohm positive
	2 Stand-by Mode: <10W	Separate Sync	positive / negative
	3 Suspend Mode: <10W	Synchronization	
	4 Off Mode: <5W	Horizontal	30KHz to 70KHz
Picture Tube	90° deflection, 0.27mm dot pitch 15.9" Diagonal (viewable) low radiation, glare, light transmission 53%	Vertical	50Hz to 120Hz
		Active Display Area	
		Horizontal	306mm typical
Maximum Resolution	1280 x 1024 at 60Hz refresh rate	Vertical	230mm typical
		Safety Standard	UL / CSA
		EMI Standard	FCC Class B

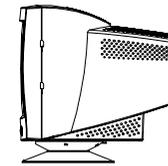
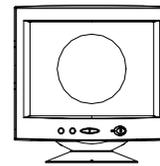
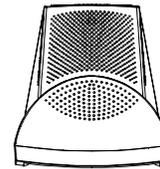
Environmental
Conditions

Operating Temperature	5°C ~ 40°C
Operating Humidity	10% ~ 80% (non-condensing)
Storage Temperature	-20° ~ +60°
Storage Humidity	5% ~ 95%
High Voltage	25KV
Dimensions (W x H x D)	410mm x 422mm x 426 mm
Weight (Net)	15.1 kg

Tilt and Swivel Operation:

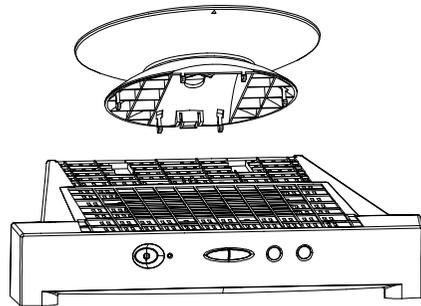
The swivel range is normally limited to 45 degrees to the right and the left of the front position (marked by a small molded pip on the top front of the base).

The tilt range is normally limited at an angle of -5 degrees forwards and +15 degrees backwards. This allows you to set the screen angle to the viewing position most comfortable to you.



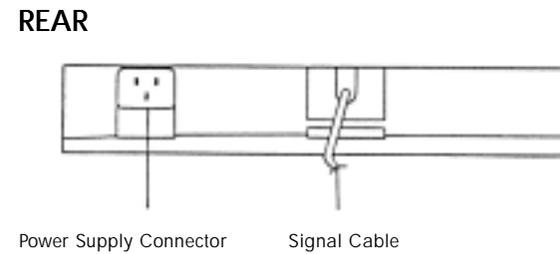
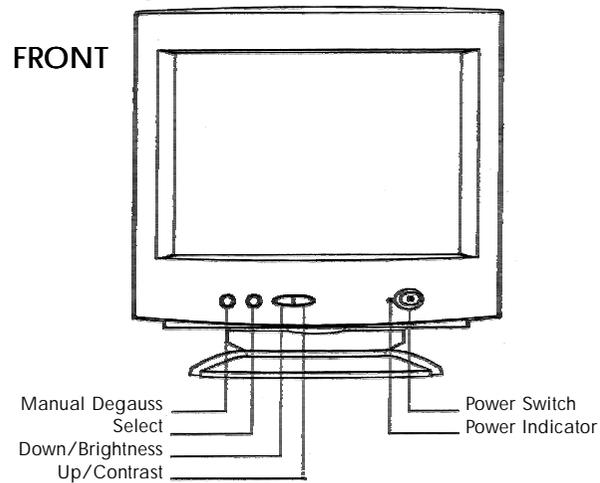
Installing the Base Pedestal

- 1 Turn the monitor upside down on a sturdy surface. (Don't place it screen-side down; the glass can be scratched.)
- 2 Position the base pedestal with the latch facing the back of the monitor.
- 3 Insert the seven tabs on the base pedestal into the seven slots found on the bottom of the monitor.
- 4 Push the base pedestal toward the front of the monitor until it snaps into position.



Control Locations and Functions

Note: *Locations of display controls are shown below.
Operation of controls is explained in the following
pages.*



Controls and Adjustments

1. Power Indicator

- A. This indicator will light when the power is on and the power cord is properly connected.
- B. The state of the LED is dependent on the power state of the monitor. When the LED is green, the monitor is in the normal state. When it is amber, it indicates a power - saving state.

2. Power Switch

Press to power on the monitor; press again to power off.
We recommend powering your system on first, then the monitor.

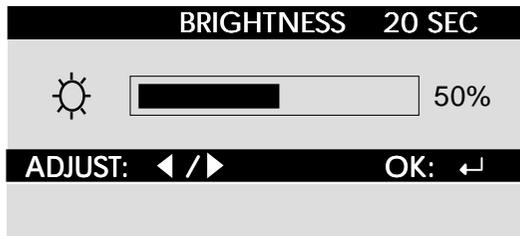
3. Direct access adjustments

These adjustments can be called to the screen only when the menu display is not present.

- a. Press the **5** button, a "contrast" horizontal bar graph will appear, press either **▶** or **◀** button to adjust upward or downward on contrast.

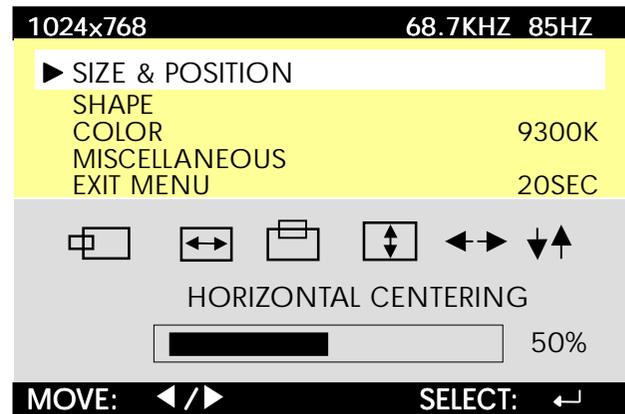


- b. Press the  button, a "brightness" horizontal bar graph will appear, press either  or  button to adjust upward or downward on brightness.



4. OSD MENU

Press "select" button to reveal the OSD main menu, all adjustments and settings are covered in the following main menu display:



The adjustment items written in the upper section of the menu display and the lower section icon contain a property which belongs to the arrowed adjustment item.

You can select the adjustment items or its property which you may adjust or perform settings by simply pressing either  or  button to move the yellow graph to the desired item.

Push the  button once again, the OSD menu will then enter the adjustment function. The slide bar locating at the lower section becomes red in color, pressing either  or  button to adjust the settings that you desired. After the adjustment is completed, push the  button once more to return to the normal OSD menu.

EXIT MENU

Menu display will be closed automatically in 20 seconds.

Or select EXIT MENU and push the  button.

ICON	NAME	FUNCTION
	Brightness	To adjust the luminance level in the image
	Contrast	To adjust the difference in luminance between light and dark areas of the image
SIZE & POSITION		
	Horizontal centering	To adjust the horizontal position of the display
	Width	To adjust the width of the display
	Vertical centering	To adjust the vertical position of the display
	Height	To adjust the height of the display
	OSD move	To enable the OSD menu to be positioned horizontally
	OSD move	To enable the OSD menu to be positioned vertically

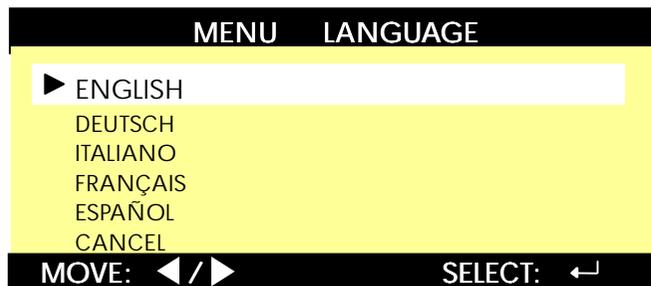
ICON	NAME	FUNCTION
SHAPE		
	Zoom	To enlarge or shrink the picture, the default setting is 50% of the slide bar
	Tilt	To adjust the display tilt
	Orthogonality	To adjust the display squareness
	Trapezoid	To adjust the straightness of the vertical edges of the display in conjunction with the pincushion control
	Pincushion	To adjust the straightness of the vertical edges of the display
	Pin balance	To adjust the straightness of the vertical edges of the display in conjunction with pincushion and trapezoid

ICON	NAME	FUNCTION
COLOR		
	Default color	To restore the color tint of the background to 9300k
	Color presets	To select the desired 3 fixed (9300k, 7000k, 6500k) background tint and an adjustable custom setting by pushing the ↵ select button
	Red value	To adjust the red magnitude when color preset selects "custom" definable setting
	Green value	To adjust the green magnitude when color preset selects "custom" definable setting
	Blue value	To adjust the blue magnitude when color preset selects "custom" definable setting
	Save current color	To store the current custom settings of the color tin

ICON	NAME	FUNCTION
MISCELLANEOUS		
	About monitor	Shows the properties of the currently used display mode
	Demagnetize	To manually degauss the display
	Monitor defaults	Recalls the original factory display presettings
	Language/Sprache /Langue	Menu language selection, totally 5 languages
	VERT. MOIRE	To reduce the vertical wavy colored lines or patterns in the background of your image
	HOR. MOIRE	To reduce the horizontal wavy colored lines or patterns in the background of your image
EXIT MENU		To remove the display of OSD menu

5. MENU LANGUAGE

To select the Menu Language in the Miscellaneous Menu, the Language menu will be displayed.



Pressing either ◀ or ▶ key to select the desired language, then push the ↵ "select" key, thus the OSD menu appears with the chosen language.

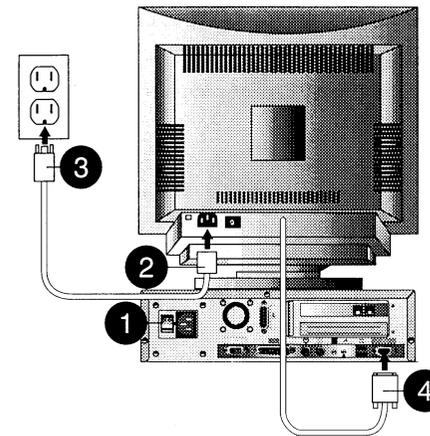
Connections

Your monitor has two connecting cables: a Power Supply Cord, which connects to a wall outlet, surge protector or other power source, and a Signal Cable, which connects to the graphics adapter of your computer. To ensure safety and correct operation, always follow these four steps when connecting the monitor:

- 1 Make sure the monitor and computer are turned off. (See previous section on safety.)
- 2 Connect the power cord to the back of the display.
- 3 Plug the other end of the cable into a grounded outlet.
- 4 Connect the video cable on the monitor to the 15-pin video graphics connector on the rear panel of the computer, and fasten the screws.

(If you have an HP Pavilion computer, this port is marked in orange. For other computers, check your computer manual for the video port location.)

Note: *Don't force the cable into the connector; line it up carefully so you don't bend the pins.*

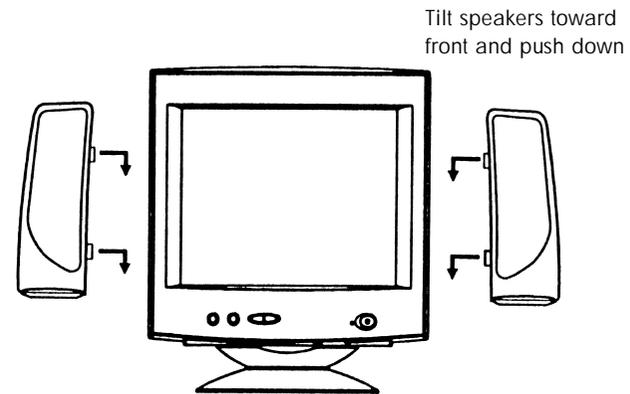


Connecting the Speakers

The display is designed for use with speakers supplied with HP Pavilion computers.

To connect the speakers:

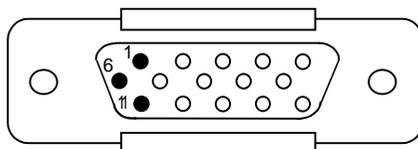
- 1 Identify the left and right speakers. You can tell which side a speaker fits onto by its mounting pegs. The side of the speaker with mounting pegs fits against the side of the display.
- 2 Fit the pegs of the right speaker into the corresponding holes on the right side of the display.
- 3 With the pegs in the corresponding holes, tilt the speaker toward the front of the monitor and push down until the speaker is secure.
- 4 Repeat procedure for left speaker and push down until speaker is secured.



Refer to your computer setup poster for instructions to connect your speaker to the PC.

Pin Assignments and Signal Levels

15-Pin D-SUB male video connector



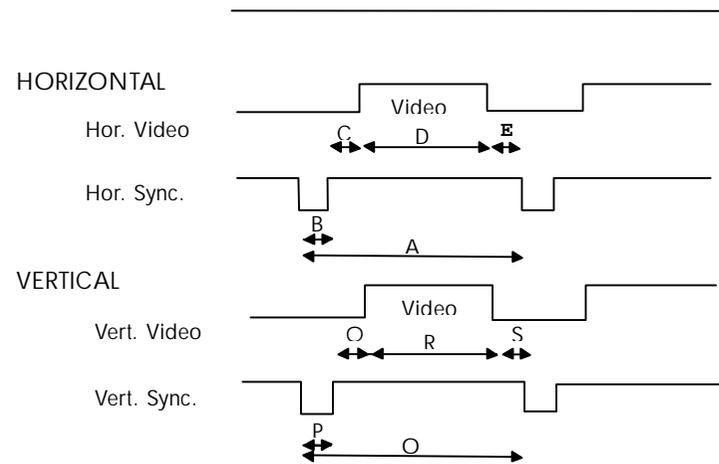
SIGNAL LEVEL

Note: The signal level at pin 1,2,3 is 0.7 Vp-p.
The signal level at pin 13,14 is 5 Vp-p.

PIN NO.	SIGNAL	PIN NO.	SIGNAL
1	RED	9	NC
2	GREEN	10	DIGITAL GROUND
3	BLUE	11	MONITOR SENSEI
4	DIGITAL GROUND	12	SDA (DDC1/2B)
5	RETURN (DDC2B)	13	H. SYNC.
6	GROUND	14	V. SYNC.
7	GROUND	15	SCL (DDC2B)
8	GROUND		

Timing Charts

SEPARATE SYNC.



FACTORY MODES

Mode No.	1	2	3	4	5	Unit
Resolution	720 x 400	640 x 480	640 x 480	800 x 600	640 x 480	
Horizontal Frequency	31.468	31.468	37.500	37.879	43.269	KHz
(A) Horizontal	31.780	31.778	26.667	26.4	23.111	usec
(B) Horizontal Pulse Width	3.814	3.813	2.032	3.2	1.556	usec
(C) Horizontal Back Porch	1.907	1.907	3.810	2.2	2.222	usec
(D) Horizontal Active Area	25.423	25.422	20.318	20.2	17.778	usec
(E) Horizontal Front Porch	0.636	0.636	0.18	1.0	1.556	usec
(F) H. Sync. Polarity	-	-	-	+	-	
Vertical Frequency	70.000	59.940	75.000	60.31	85.0	Hz
(O) Vertical Period	14.269	16.683	13.333	16.579	11.764	msec
(P) Vertical Pulse Width	0.064	0.064	0.08	0.1056	0.069	msec
(Q) Vertical Back Porch	1.08	1.049	0.427	0.607	0.578	msec
(R) Vertical Active Area	12.712	15.253	12.800	15.84	11.093	msec
(S) Vertical Front Porch	0.413	0.318	0.027	0.0264	0.023	msec
(T) V. Sync. Polarity	+	-	-	+	-	
(U) Interlaced	No	No	No	No	No	

FACTORY MODES

Mode No.	6	7	8	9	10	Unit
Resolution	800 x 600	1024 x 768	800 x 600	1024 x 768	1024 x 768	
Horizontal Frequency	46.875	48.363	53.674	56.476	68.677	KHz
(A) Horizontal	21.333	20.677	18.631	17.707	14.561	usec
(B) Horizontal Pulse Width	1.616	2.092	1.138	1.813	1.013	usec
(C) Horizontal Back Porch	3.232	2.462	2.702	1.92	2.2	usec
(D) Horizontal Active Area	16.162	15.754	14.222	13.653	10.836	usec
(E) Horizontal Front Porch	0.323	0.369	0.702	0.521	0.471	usec
(F) H. Sync. Polarity	+	-	-	-	+	
Vertical Frequency	75.000	60.00	85.061	70.069	85	Hz
(O) Vertical Period	13.333	16.666	11.756	14.272	11.764	msec
(P) Vertical Pulse Width	0.064	0.124	0.056	0.106	0.044	msec
(Q) Vertical Back Porch	0.448	0.600	0.503	0.513	0.524	msec
(R) Vertical Active Area	12.800	15.88	11.179	13.599	11.182	msec
(S) Vertical Front Porch	0.021	0.062	0.019	0.054	0.014	msec
(T) V. Sync. Polarity	+	-	+	-	+	
(U) Interlaced	No	No	No	No	No	

Troubleshooting

Before you call an authorized service center, please check if the following items are properly connected. If a nonstandard personal computer or graphics

adapter is being used, make sure the pin assignments of the signal input connector and the signal timing meet the specifications detailed previously.

PROBLEM	CHECKS	LOCATION
No picture or POWER indicator off.	<ul style="list-style-type: none">• AC cord plugged in• POWER switch on• Signal cable connected	Rear Front Rear
No picture, POWER indicator off, AC cord plugged in, POWER switch on.	<ul style="list-style-type: none">• Turn off POWER switch, wait at Least 30 seconds, turn it back on.	Front
Image is not centered.	<ul style="list-style-type: none">• V-CENTERING Control• H-PHASE Control	Front Front
No picture, POWER indicator on.	<ul style="list-style-type: none">• CONTRAST Control• BRIGHTNESS Control	Front Front

Automatic Power Saving

Introduction

“Green Concept” has prevailed throughout the information market of the world for some years. EPA (Environmental Protection Agency) stipulates that all information products sold to the UNITED STATES should meet the requirement of environmental protection. Thus, we promote a series of monitors with power-saving features which meet the “EPA” energy star requirement. Below are the criteria:

Features

When the monitor is connected to an unpowered PC or when both horizontal and vertical syncs are not present, the monitor will enter the “off” state and the power LED will be amber.

When either horizontal or vertical sync is absent, the monitor will automatically enter the “Suspend” or “Stand-by” state and the power LED color will be yellow.

When the PC recovers from the sleep state by either operation of the keyboard or mouse, the monitor will power up normally and the power LED will be green.

Power Consumption

The monitor power is reduced to less than 5 Watts in the power save “OFF” state and meets the U.S.A “EPA” energy star requirement and VESA “DPMS” requirement.

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.

X-Ray Radiation Notice

When operating, this product emits X-rays; however, it is well shielded and meets the safety and health requirements of various countries, such as the Radiation Act of Germany and the Radiation Control for Health and Safety Act of the United States.

Radiation emitted by this product is less than 0.1mR/hr (1 μ Sv/hr) at a distance of 10 centimeters from the surface of the cathode-ray tube. The x-ray radiation primarily depends on the characteristics of the cathode-ray tube and its associated low-voltage and high-voltage circuitry. Internal controls have been adjusted to ensure safe operation. Only qualified personnel should perform any internal adjustments, as specified in the service manual for this product.

Replace the cathode-ray tube with an identical CRT only.

Cables

Connections to this device must be made with shielded cables with metallic REI/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 le matériel brouilleur du Canada.

EPA Energy Star

Monitors that are marked with the Energy Star logo meet the requirements of the EPA Energy Star program. Specific details on using the Energy Star features can be found in the energy saver or power management section of the manual that comes with the computer the monitor is connected to.

Product names mentioned herein may be trademarks and / or registered trademarks of their respective companies.

Declaration of Conformity

Manufacturer's Name: Hewlett-Packard Company

Manufacturer's Address: 10500 Ridgeview Ct.
Cupertino, CA 95015 USA

Declares that the product

Product Name: HP Pavilion v70s Multimedia Display

Model Number: P3902X (where X=A...Z)

Conforms to the following Product Specifications:

Safety: IEC 60950:1991+A1+A2+A3+A4

EN 60950:1992+A1+A2+A3+A4+A11

EMC: CISPR 22:1993+A1+A2/ EN 55022:1994+A1+A2-Class B¹⁾

EN 50082-1:1992-Generic Immunity

IEC 801-2:1991/ prEN 55024-2:1992-4kV CD,8kV AD

IEC 801-3:1984/ prEN 55024-3:1991-3V/m

IEC 801-4:1988/ prEN 55024-4:1993-0.5kV Signal Lines.
1kV Power Lines.

FCC Title 47 CFR, Part 15 Class B²⁾/ ICES-002, Issue2

Supplementary Information:

The product herewith complies with the requirements of the Low Voltage Directive 73/23/EEC and the EMC

Directive 89/336/EEC and carries the CE-marking accordingly.

1) The product was tested in a typical configuration with a Hewlett Packard Personal Computer and Peripherals.

2) This Device complies with Part 15 of the FCC Rules. Operation is subject to the following two Conditions:

- (1) this device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

Cupertino, CA USA December, 2000 Quality Engineering Manager

For Regulatory Compliance Information ONLY, contact:

European contact: for regulatory topics only: Hewlett-Packard GmbH, HQ-TRE, Herrenberger Straße 110-140, D-71034 Böllingen (FAX:+49-7031-14-3143).

USA Contact: Hardware Quality Eng. Manager, Hewlett-Packard Company, HPD, 10500 Ridgeview Ct, Cupertino, CA 95015-4010. Phone: (408)-343-5000

Declaration of Conformity

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P/N: 5030011005

