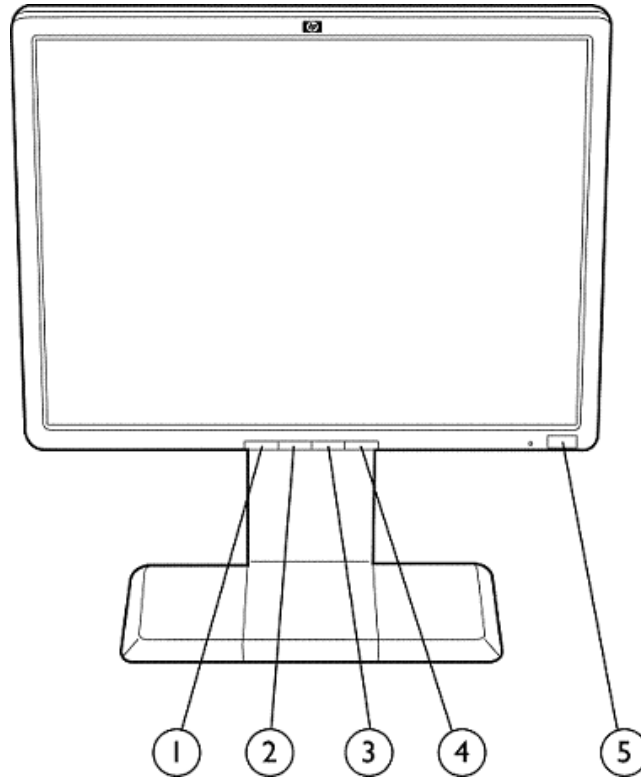


### Overview



1. Opens, selects or exits the OSD menu.
2. Navigates backward through the OSD menu and decreases adjustment levels. When the OSD menu is inactive, activates the auto-adjustment feature to optimize the screen image.
3. Navigates forward through the OSD menu and increases adjustment levels.
4. Selects video input, DVI-I#1 or DVI-I#2.
5. Turns the monitor on or off.

### Models

Workstation Volume Channel

EF227A4-#xxx

Workstation Value Channel

EF227A5-#xxx

### Technical Specifications

<b>Panel</b>	<b>Type</b>	20-inch Active Matrix TFT (thin film transistor)	
	<b>Viewable Image Area</b> (diagonal)	20.1 in (51 cm)	
	<b>Screen Opening</b> (WxH)	16.2 x 12.17 in (40.8 x 30.6 cm)	
	<b>Viewing Angle</b> (typical)	178° horizontal/178° vertical (10:1 minimum contrast ratio)	
	<b>Brightness</b> (typical)	300 nits (cd/m <sup>2</sup> )	
	<b>Contrast Ratio</b> (typical)	800:1	
	<b>Response Time</b> (typical)	8 ms <sup>1</sup>	
	<b>Pixel Pitch</b>	0.255 mm	
	<b>Color Depth Support</b>	16.7 million colors	
	<b>Backlight Lamp Life</b> (to half brightness)	45K hours	
<b>On Screen Display (OSD) Controls</b>	<b>Buttons or Switches</b>	OSD menu select, auto adjust/OSD up, OSD down Input select, power	
	<b>Languages</b>	English, French, German, Spanish, Italian, Dutch, and Japanese	
	<b>User Controls</b>	Brightness, contrast, positioning, color temperature, individual color control, serial number display, full screen resolutions, clock, clock phase, input selection, image control (including scaling), and factory reset	
<b>Signal Interface/ Performance</b>	<b>Horizontal Frequency</b>	30 to 94 kHz (VGA input); 30 to 92 KHz (DVI input for modes with pixel clock less than 162 MHz)	
	<b>Vertical Frequency</b>	48 to 85 Hz (VGA input); 48 to 85 Hz (DVI input for modes with pixel clock less than 162 MHz)	
	<b>Native Resolution</b>	1600 x 1200 @ 60 Hz (recommended)	
	<b>Preset VESA Graphic Modes</b> (non-interlaced)		1600 x 1200 @ 60 Hz, 75 Hz (analog input)
			1280 x 1024 @ 60 Hz, 75 Hz, and 85 Hz
			1280 x 960 @ 60 Hz
			1152 x 900 @ 66 Hz
			1024 x 768 @ 60 Hz, 75 Hz, and 85 Hz
			800 x 600 @ 60 Hz, 85 Hz
			640 x 480 @ 60 Hz, 75 Hz, and 85 Hz
		<b>Text Mode</b>	720 x 400 @ 70 Hz
		<b>Mac Mode</b>	1152 x 870 @ 75 Hz and 832 x 624 @ 75 Hz
		<b>Sun Mode</b>	1152 x 900 @ 66 Hz
	<b>Maximum Pixel Clock Speed</b>	202 MHz (analog input); 162 MHz (DVI input)	
	<b>User Programmable Modes</b>	Yes, 10	
<b>Anti-Glare</b>	Yes		
<b>Anti-Static</b>	Yes		
<b>Default Color Temperature</b>	6500 K		

### Technical Specifications

Video/Other Inputs	Plug and Play	Yes		
	Self Powered USB 2.0 Hub	One upstream, four downstream ports (cable included)		
	Input Signal	Two DVI-I connectors (dual VGA analog or dual digital input possible)		
	Input Impedance	75 ohms $\pm$ 10%		
	Sync Input	Separate sync (HSYNC/VSYNC); composite sync, Sync on Green		
	Video Cable	Two VGA to DVI-I; two DVI-D to DVI-I		
	Video Cable Length	6.5 ft (1.98 m)		
Power	Input Power	Auto-Ranging, 90 ~ 265 VAC; internal power supply, 50 Hz/60 Hz		
	Frequency	47.5 to 63 Hz		
	Typical Power Consumption	55 watts (without USB ports); 70 watts (USB ports fully loaded)		
	Maximum	< 75 watts		
	Power Saving	< 2 watts		
	Power Cable Length	5.9 ft (1.8 m)		
Mechanical	Dimensions (H x W x D)	Unpacked w/ stand	16.7 to 21.8 x 17.4 x 8.67 in (42.5 to 55.5 x 44.3 x 22.0 cm)	
		Unpacked w/o stand (head only)	13.58 x 17.4 x 3.42 in (34.5 x 44.3 x 8.7 cm)	
		Packaged	11.77 x 22.2 x 16.77 in (29.9 x 56.4 x 42.6 cm)	
	Weight	Unpacked	With stand: 20.28 lb (9.2 kg); Without stand: 12.65 lb (5.75 kg)	
		Packaged	26.3 lb (11.95 kg)	
	Tilt Range	-5° to + 25° vertical tilt		
	Swivel Range	-45° to + 45°		
	Height Adjustable	Yes, range 5.1 in (13.0 cm)		
	Pivot Rotation	Yes		
	Base	Detachable, ships detached		
Environmental	Temperature – Operating	41° to 95° F (5° to 35° C)		
	Temperature – Non-operating	6° to 140° F (-10° to 60° C)		
	Humidity – Operating	20% to 80% non-condensing		
	Humidity – Non-operating	20% to 80%		
	Altitude – Operating	+12,000 ft (3657.6 m)		
	Altitude – Non-operating	+40,000 ft (12,192 m)		

### Technical Specifications

#### Environmental Data

#### Eco-Label Certifications and Declarations

This product has received or is in the process of being certified to the following approvals and may be labeled with one or more of these marks:

- US Energy Star
- IT ECO declaration
- TCO 03
- EU Flower (2001/686/EC & 2001/687/EC)
- GEEA

#### Energy Consumption (in accordance with US Energy Star test method)

	AC Input Voltage at 100 VAC +/- 5 VAC, 50 Hz +/- 3 Hz	AC Input Voltage at 115 VAC +/- 5 VAC, 60 Hz +/- 3 Hz	AC Input Voltage at 230 VAC +/- 5 VAC, 50 Hz +/- 3 Hz
<b>Normal Operation</b>	39.5 watts	39.2 watts	38.8 watts
<b>Sleep</b>	0.9 watts	0.9 watts	1.1 watts
<b>Off</b>	0.9 watts	0.9 watts	1.1 watts
<b>Heat Dissipation*</b>	100 VAC, 50 Hz	115 VAC, 60 Hz	230 VAC, 50 Hz
<b>Normal Operation</b>	135 BTU/hr	134 BTU/hr	132 BTU/hr
<b>Sleep</b>	3.07 BTU/hr	3.07 BTU/hr	3.75 BTU/hr
<b>Off</b>	1.70 BTU/hr	1.70 BTU/hr	2.38 BTU/hr

**\*NOTE:** Heat dissipation is calculated based on the measured watts, assuming the service level is attained for one hour.

#### Longevity and Upgrading

Upgradeability features contained in the product include:  
One upstream and four downstream USB ports

#### Ergonomics

The monitor meets the ergonomic requirement of EN-ISO 13406-2 for flat panel displays.

#### Additional Information

This product is in compliance with the Restrictions of Hazardous Substances (RoHS) Directive, 2002/95/EC.

This HP product is designed to comply with the Waste Electrical and Electronic Equipment (WEEE) Directive, 2002/96/EC.

Plastics parts weighing over 25 grams used in the product are marked per ISO 11469 and ISO1043.

Display meets the requirement for low frequency electromagnetic fields per MPR-II, TCO, and prEN50279 A/B/C.

This product contains 0% recycled materials (by wt.)

This product is 97.8% recyclable when properly disposed of at end of life (8020/7801).

#### Packaging Materials

- Corrugated Carton – 11 kg
- HDPE Bag – 0.065 kg
- Polystyrene – 0.535 kg

### Technical Specifications

#### Material Usage

This product does not contain any of the following substances in excess of regulatory limits (refer to the HP General Specification for the Environment at [http://www.hp.com/hpinfo/globalcitizenship/environment/supplychain/gen\\_specifications.html](http://www.hp.com/hpinfo/globalcitizenship/environment/supplychain/gen_specifications.html)):

- Asbestos
- Certain Azo Colorants
- Certain Brominated Flame Retardants – may not be used as flame retardants in plastics
- Cadmium
- Chlorinated Hydrocarbons
- Chlorinated Paraffins
- Formaldehyde
- Halogenated Diphenyl Methanes
- Lead carbonates and sulfates
- Lead and Lead compounds
- Mercuric Oxide Batteries
- Nickel – finishes must not be used on the external surface designed to be frequently handled or carried by the user.
- Ozone Depleting Substances
- Polybrominated Biphenyls (PBBs)
- Polybrominated Biphenyl Ethers (PBBEs)
- Polybrominated Biphenyl Oxides (PBBOs)
- Polychlorinated Biphenyl (PCB)
- Polychlorinated Terphenyls (PCT)
- Polyvinyl Chloride (PVC) – except for wires and cables, and certain retail packaging has been voluntarily removed from most applications.
- Radioactive Substances
- Tributyl Tin (TBT), Triphenyl Tin (TPT), Tributyl Tin Oxide (TBTO)

#### Packaging

HP follows these guidelines to decrease the environmental impact of product packaging:

- Eliminate the use of heavy metals such as lead, chromium, mercury and cadmium in packaging materials.
- Eliminate the use of ozone-depleting substances (ODS) in packaging materials.
- Design packaging materials for ease of disassembly.
- Maximize the use of post-consumer recycled content materials in packaging materials.
- Use readily recyclable packaging materials such as paper and corrugated materials.
- Reduce size and weight of packages to improve transportation fuel efficiency.
- Plastic packaging materials are marked according to ISO 11469 and DIN 6120 standards.

#### End-of-life Management and Recycling

Hewlett-Packard offers end-of-life HP product return and recycling programs in many geographic areas. To recycle your product, please go to: <http://www.hp.com/recycle> or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner.

### Technical Specifications

	<b>Hewlett-Packard Corporate Environmental Information</b>	For more information about HP's commitment to the environment: Global Citizenship Report <a href="http://www.hp.com/hpinfo/globalcitizenship/gcreport/index.html">http://www.hp.com/hpinfo/globalcitizenship/gcreport/index.html</a> Eco-label certifications <a href="http://www.hp.com/hpinfo/globalcitizenship/environment/productdesign/ecolabels.html">http://www.hp.com/hpinfo/globalcitizenship/environment/productdesign/ecolabels.html</a> ISO 14001 certificates: <a href="http://www.hp.com/hpinfo/globalcitizenship/environment/operations/envmanagement.html">http://www.hp.com/hpinfo/globalcitizenship/environment/operations/envmanagement.html</a>
<b>Options</b>	<b>HP Silver Flat Panel Speaker Bar – Part number: EE418AA</b>	Powered directly by the monitor or the PC, the Speaker Bar seamlessly attaches to the monitor's lower bezel to bring full audio support to select HP flat panel monitors. Features include dual speakers with full sound range and external jack for headphones. Sold separately. For more information, refer to the HP Silver Flat Panel Speaker Bar QuickSpec.
<b>Other</b>	<b>Accessories Included</b>	VGA to DVI-I cable – connects the graphic card's VGA connector to the monitor's input #1 or 2 (DVI-I analog) connector. DVI-D to DVI-D cable – connects the graphic card's DVI-D digital connector to the monitor's input #1 or #2 (DVI-I digital) connector.
	<b>Software</b>	HP Display Assistant Utility makes it possible to adjust displays settings through the PC using two-way communication via DDCI. HP Display Lite Saver allows ability to power up and down display at predetermined hours of the day to save power and backlight life. Pivot Pro software from Portrait Displays, Inc. interacts with your PC's native graphics driver to enable seamless portrait screen redraws with a simple mouse-click or keyboard command. Pivot Pro supports 90-degree portrait and landscape views. Language support is available in English, Japanese, French, German, Spanish, Italian, and Traditional and Simplified Chinese.
	<b>User Guide Languages</b>	English, B. Portuguese, French, LA Spanish, Korean, S. Chinese, T. Chinese, Bahasa, Japanese, Danish, Finnish, German, Norwegian, Spanish, Swedish, Greek, Polish, Russian, Slovenian, Turkish
	<b>Warranty Languages</b>	English, Canadian French, LA Spanish, Brazilian Portuguese, Danish, German, Castilian Spanish, French, Italian, Dutch, Norwegian, Finnish, Swedish, Bahasa Indonesian, Korean, T. Chinese, S. Chinese
	<b>Color</b>	Carbonite/silver
	<b>VESA External Mounting</b>	Yes (Standard 4 hole pattern, 100 mm)
	<b>Kensington Lock-Ready</b>	Yes
<b>Certification and Compliance</b>		Australian ACA Approval, Canadian Requirements/CSA, CE Marking, China CCC Approval, CISPR Requirements, Eastern European Approvals, Energy Star Compliant, FCC Approval, German Ergonomic (TUV and GS Mark), ISO 13406-2 Pixel Defect Guidelines, Mexican NOM Approval, MIC Requirements (New Zealand), MPR-II Compliant, PC2001 Compliant, PC99 Certified, S. Korean MIC Approval, Taiwan BSMI Approval, TCO 03 (emissions, ergonomics, environment), TUV-Ergo, UL Listed, VCCI Approvals, Microsoft® Windows® Certification (Microsoft® Windows® 98, Microsoft Windows 2000, and Microsoft Windows XP)
<b>Compatibility</b>		Compatible with platforms using the VESA standard video modes. Recommended for use with HP products.

### Technical Specifications

**Service and Warranty** Three years parts, labor, and on-site service. 24-hour, 90-day, toll-free technical support. Replacement options may include second business day on-site service, or next business day direct replacement, at HP's sole discretion. With direct replacement, HP will ship a replacement display product directly to you. Using the prepaid shipping labels provided, return your failed display to HP in the same packaging as the replacement. Certain restrictions and exclusions apply. For details see your product warranty or contact HP Customer Support.

#### NOTES:

<sup>1</sup> Response time: 8 ms (gray to gray); 16 ms (rise and fall).

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The HP Flat Panel Monitor Quick Release has been designed to support a maximum of up to 24 lbs (10.9 kg) depending upon the mounting configuration used. Because mounting surfaces vary widely and the final mounting method and configuration may vary, mounting fasteners are not supplied (other than the VESA-compliant screws). HP recommends that you consult with a qualified engineering, architectural or construction professional to determine the appropriate type and quantity of mounting fasteners required for your application and to ensure that your mounting solution is properly installed to support applied loads.

All performance specifications represent the typical specifications provided by HP's component manufacturers; actual performance may vary either higher or lower. The only warranties for HP products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. HP shall not be liable for technical or editorial errors or omissions contained herein.