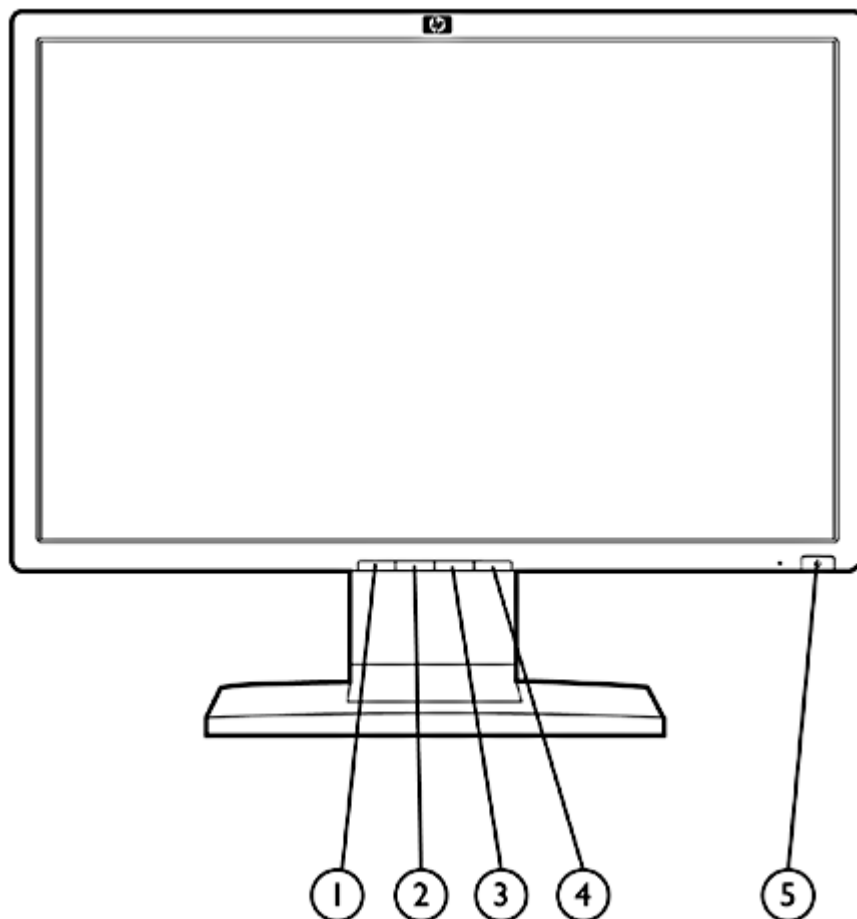


### Overview



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 and Business Desktop Channel

EF224A4#xxx

### Technical Specifications

<b>Panel</b>	<b>Type</b>	24-inch Wide Format Active Matrix TFT (thin film transistor)	
	<b>Viewable Image Area (diagonal)</b>	24 in (60.96 cm)	
	<b>Screen Opening (WxH)</b>	20.47 x 12.83 in (52.0 x 32.6 cm)	
	<b>Viewing Angle (typical)<sup>1</sup></b>	Up to 178° H/ 178° V (10:1 minimum contrast ratio)	
	<b>Brightness (typical)<sup>1</sup></b>	Up to 500 nits (cd/m <sup>2</sup> )	
	<b>Contrast Ratio (typical)<sup>1</sup></b>	Up to 1000:1	
	<b>Response Time (typical)<sup>1</sup></b>	6 ms (typical gray to gray)	
	<b>Pixel Pitch</b>	0.270 mm	
	<b>Color Gamut</b>	72%	
	<b>Backlight Lamp Life (to half brightness)</b>	50K hours	
<b>On Screen Display (OSD) Controls</b>	<b>Buttons or Switches</b>	Input Select, Auto Adjust, OSD Up, OSD Down, OSD Menu Select, Power	
	<b>Languages</b>	English, French, German, Spanish, Italian, Japanese, Dutch	
	<b>User Controls</b>	Brightness, contrast, positioning, color temperature, individual color control, serial number display, full screen resolutions, clock, clock phase, input selection (includes separate direct access key for dedicated swap between inputs 1 and 2), 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 157 MHz)	
	<b>Vertical Frequency</b>	48 to 85 Hz (VGA and DVI input)	
	<b>Native Resolution</b>	1920 x 1200 @ 60 Hz (recommended) (native aspect ratio of 16:10)	
	<b>Preset VESA Graphic Modes (non-interlaced)</b>		1920 x 1200 @ 60Hz
			1600 x 1200 @ 60 Hz, 75 Hz
			1280 x 1024 @ 60 Hz, 75Hz, 85 Hz
			1280 x 960 @ 60 Hz
			1152 x 900 @ 66 Hz
			1024 x 768 @ 60 Hz, 75 Hz, 85 Hz
			800 x 600 @ 60 Hz, 75Hz
	640 x 480 @ 60 Hz, 75 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 (VGA input); 162 MHz (DVI input)		
<b>User Programmable Modes</b>	Yes, 20		

### Technical Specifications

	Anti-Glare	Yes	
	Anti-Static	Yes	
	Default Color Temperature	6500 K	
Video and Other Inputs	Plug and Play	Yes	
	Self Powered USB 2.0 Hub	One upstream, four downstream ports (located on side of monitor, cable included)	
	Input Signal	Two DVI-I (VGA analog and digital) inputs	
	Input Impedance	75 ohms $\pm$ 10%	
	Sync Input	Separate sync (HSYNC/VSYNC); composite sync, Sync on Green	
	Video Cable	Two VGA to DVI-I and two DVI-D to DVI-D cables included	
	Video Cable Length	5.9 ft (1.8 m)	
Power	Input Power	Auto-Ranging, 90 to 132 VAC and 195 to 265 VAC; internal power supply, 50 Hz/60 Hz	
	Frequency	47.5 to 63 Hz	
	Typical Power Consumption	75 watts	
	Maximum	< 110 watts	
	Power Saving	< 2 watts	
	Power Cable Length	6.2 ft (1.9 m)	
Mechanical	Dimensions (H x W x D)	<b>Unpacked</b>	14.6 (min) to 19.7 (max) x 22 x 9.1 in (37.1 (min) to 50.1 (max) x 55.4 x 23.2 cm)
		<b>Unpacked w/o stand (head only)</b>	14.4 x 22 x 3.7 in (36.6 x 55.84 x 9.2 cm)
		<b>Packaged</b>	11.7 x 22.1 x 25.6 in (29.8 x 56.0 x 65.1 cm)
	Weight	<b>Unpacked</b>	23.6 lbs (10.7 kg)
		<b>Packaged</b>	32.4 lbs (14.7 kg)
	Tilt Range	-5° to + 25° vertical	
	Swivel Range	-45° to + 45°	
	Height Adjustable	Yes, range 5.1 in (130 mm)	
	Pivot Rotation	Yes	
	Base	Detachable, ships detached	
Environmental	Temperature – Operating	46° to 95° F (10° to 35° C)	
	Temperature – Non-operating	6° to 140° F (-10° to 60° C)	
	Humidity – Operating	20% to 80% non-condensing	
	Humidity – Non-operating	5% to 85%	
	Altitude – Operating	+12,000 ft	
	Altitude – Non-operating	+40,000 ft	
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:	



### Technical Specifications

- ENERGY STAR®
- IT ECO declaration
- TCO 03

Energy Consumption (in accordance with 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
Normal Operation	45.48 watts	45.18 watts	45.54 watts
First Low Power/Sleep Mode	1.07 watts	1.02 watts	1.19 watts
Second Low Power/Deep Sleep Mode	1.07 watts	1.02 watts	1.20 watts
Off	0.005 watts	0.006 watts	0.025 watts

Heat Dissipation*	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
Normal Operation	154.16 BTU/hr	155.18 BTU/hr	155.39 BTU/hr
Sleep	3.65 BTU/hr	3.48 BTU/hr	4.06 BTU/hr
Second Low Power/Deep Sleep Mode	3.65 BTU/hr	3.48 BTU/hr	4.09 BTU/hr
Off	0.017	0.020	0.085

\* 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 TCO and prEN50279 A/B/C.

#### Packaging Materials

- Corrugated Carton 0.47 kg
- HDPE Bag 0.0765 kg
- Polystyrene 0.28 kg

**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:

### Technical Specifications

[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: [www.hp.com/recycle](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.

### Hewlett-Packard Corporate Environmental Information

For more information about HP's commitment to the environment: Global Citizenship Report [www.hp.com/hpinfo/globalcitizenship/gcreport/index.html](http://www.hp.com/hpinfo/globalcitizenship/gcreport/index.html)  
Eco-label certifications



### Technical Specifications

[www.hp.com/hpinfo/globalcitizenship/environment/productdesign/ecolabels.html](http://www.hp.com/hpinfo/globalcitizenship/environment/productdesign/ecolabels.html)

ISO 14001 certificates:

[www.hp.com/hpinfo/globalcitizenship/environment/operations/envmanagement.html](http://www.hp.com/hpinfo/globalcitizenship/environment/operations/envmanagement.html)

<b>Other</b>	<b>Accessories Included</b>	Two VGA to DVI-I cables - connects the graphic card's VGA connector to the monitor's input #2 (DVI-I analog) connector Two DVI-D to DVI-D cables - connects the graphic card's DVI-D digital connector to the monitor's input #2 (DVI-I digital) connector	
	<b>Software</b>	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. HP Display Assistant is a software utility that allows monitor adjustment, color calibration, and security/asset management using the Display Data Channel Command Interface (DDC/CI) protocol of the connected desktop PC. HP Display LiteSaver feature allows you to schedule Sleep mode at preset times to help protect the monitor against image retention, drastically lower power consumption and energy costs, and extend the lifespan of the monitor.	
	<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>Security Lock-Ready</b>	Yes	
	<b>Options</b>	<b>HP LCD Speaker Bar-Part number: EE418AA</b>	Powered directly by the monitor or 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 an external jack for headphones. Sold separately. For more information, refer to the HP LCD Speaker Bar QuickSpec.
		<b>HP Security Lock-Part number PC766A</b>	Combines aircraft-grade steel and Kevlar fiber to securely lock down your monitor and help prevent theft.
	<b>Certification and Compliance</b>	Australian ACA Approval, Canadian Requirements/CSA, CE Marking, China CCIB/CCEE Approval, CISPR Requirements, Eastern European Approvals, ENERGY STAR® qualified, FCC Approval, German Ergonomic (TUV and GS Mark), ISO 13406-2 Pixel Defect Guidelines, Mexican NOM Approval, MIC Requirements (New Zealand), Nordic Approvals (Nemko, Fimko, Demko, Semko), 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, Microsoft Windows XP, and Windows Vista®), EPEAT™ Silver	
<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.

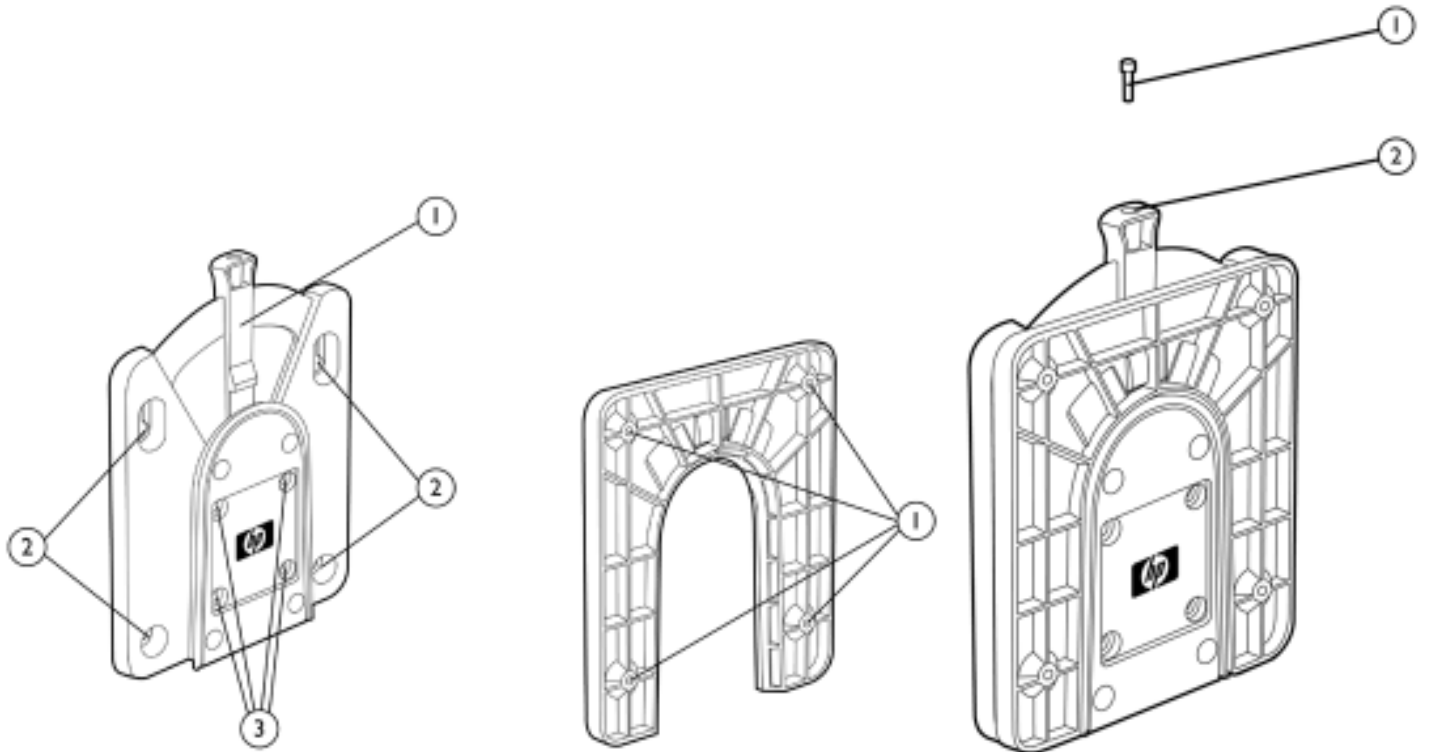
<sup>1</sup> All performance specifications represent the typical specifications provided by HP's component manufacturers; actual performance may vary either higher or lower.

<sup>2</sup> Response time: 13 ms rise and fall, 6 ms gray to gray.

<sup>3</sup> Service levels and response times for HP Care Pack Services may vary depending on your geographic location. Service starts from date of hardware purchase. Restrictions and limitations apply. HP Care Pack Services extend service contracts beyond the standard warranties. To choose the right level of service for your HP product, use the HP Care Pack Services Lookup Tool at:

[www.hp.com/go/lookuptool](http://www.hp.com/go/lookuptool). Additional HP Care Pack Services information by product is available at: [www.hp.com/hps/carepack](http://www.hp.com/hps/carepack).

### Overview - HP LCD Monitor Quick Release



1. Release/locking
2. Four 100 mm VESA mount screw holes
3. Mounting holes for attachment to back of HP LP1965, LP2065, and HP LP2465 monitor stands

1. Four 100 mm VESA mount screw holes

1. Locking pin screw
2. Locking pin hole on release/locking arm

## Introduction

The HP Quick Release, which ships standard with the HP LP2465 24-inch Widescreen LCD Monitor, is an easy to use, 100 mm VESA-compliant, flat panel monitor mounting solution that allows you to quickly and securely attach a flat panel monitor to a variety of stands, brackets, arms or wall mounts. HP Quick Release can also be used for mounting any combination of devices that are compatible with the 100 mm VESA Flat Display Mounting Interface Standard. The failsafe "Sure-Lock" mechanism snaps the monitor (or mounted device) securely in place, and can be further secured with a theft-deterrent security screw.

## Uniquely flexible product configurations

HP Quick Release enables uniquely flexible product configuration alternatives in a variety of settings, such as:

- Storefronts/kiosks: Mount flat panel monitors for easy viewing and add touchscreens for interactivity.
- Trade shows: Securely mount LCD TVs or monitors in common areas and quickly remove them for safekeeping at the end of the day.
- Front office environments: Minimize desk space requirements with wall or swing-arm mounting of monitors in reception areas.
- Training labs: Mount a monitor directly on a 100 mm VESA-compatible PC or an HP Thin Client for all-in-one convenience.
- Medical/institutional settings: Securely mount monitors in nursing stations and public areas.
- Conference rooms: Mount projectors (with 100 mm VESA-compliant pre-drilled holes) on ceilings, and monitors on walls or tables.



### Technical Specifications - HP LCD Monitor Quick Release

<b>Mechanical</b>	<b>Dimensions</b> (H x W x D)	<b>Packaged</b>	7.8 x 6.25 x 1.5 in (19.8 x 15.9 x 3.8 cm)
		<b>Unpackaged</b>	6.3 x 5.2 x 0.65 in (16 x 13.2 x 1.65 cm)
	<b>Weight</b>	<b>Packaged</b>	1.1 lb (0.49 kg)
		<b>Unpackaged</b>	0.82 lb (0.37 kg)
<b>Additional components</b>	<ul style="list-style-type: none"><li>• Eight 10 mm mounting screws (for attachment to VESA compliant monitor mounts)</li><li>• Eight 15.5 mm mounting screws (for attachment to HP Thin Client products)</li><li>• Four 20 mm mounting screws (for attachment to back of select HP flat panel monitor stands)</li><li>• One Quick Release "locking" screw</li></ul>		
<b>Color</b>	Carbonite		
<b>Notes</b>	<ol style="list-style-type: none"><li>1. No HP monitors allow positioning of a thin client product between a monitor screen and its stand.</li><li>2. The Quick Release device is not to be used between a monitor screen and its stand unless provided that way from the factory.</li><li>3. Under no circumstances is the Quick Release device intended to be used in an orientation where the Release/Lock lever is oriented downward.</li></ol>		
<b>Supported weight capacity</b>	The HP Quick Release has been designed to support a maximum of up to 24 lbs (10.9 kg) depending upon the mounting configuration used. Please note this is a total weight limit for all devices mounted, i.e. the combined weight of the monitor and a second device such as an HP Thin Client cannot exceed 24 pounds. 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.		

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