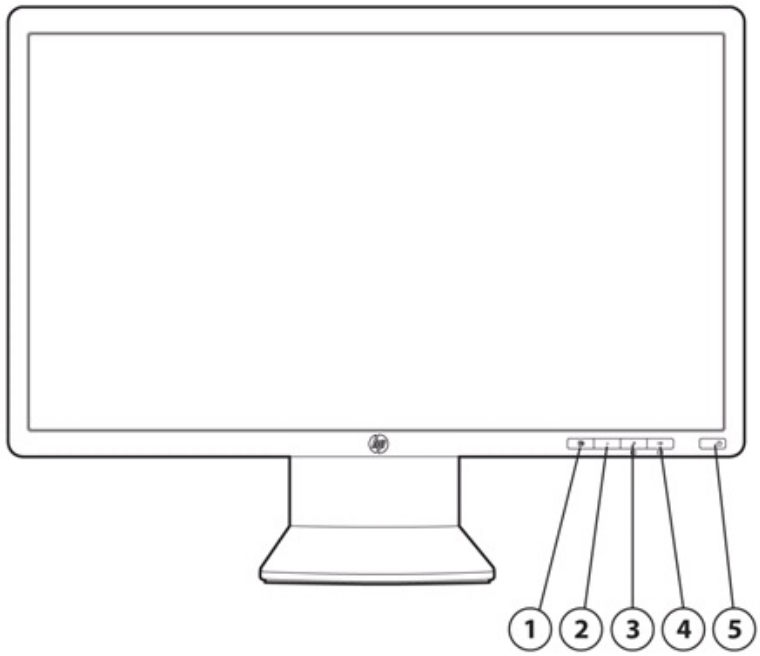
Overview

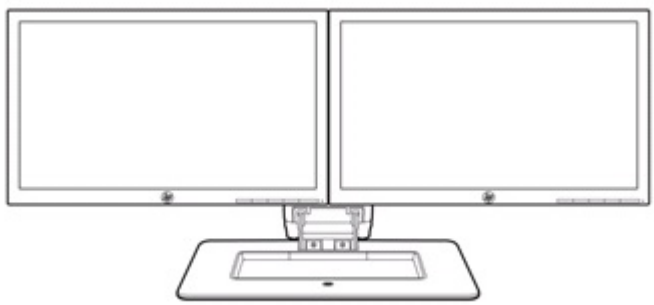


1.	**Menu** Opens, selects or exits the OSD menu.	**4.**	**OK/Auto** If the OSD menu is on, press to select the highlighted menu item. If the OSD menu is inactive, press to activate the auto adjustment feature to optimize the screen image.

2.	**Minus "-"** If the OSD menu is on, press to navigate backward through the OSD menu and decrease adjustment levels.	**5.**	**Power/Power LED** Turns the monitor on or off.
			LED:
			fully powered = white;
			sleep mode = amber;
			sleep timer mode = flashing amber.

3.	**Plus"+"/Input** If the OSD menu is on, press to navigate forward through the OSD menu and increase adjustment levels. If the OSD menu is inactive, press to activate the source button that chooses the video signal input (VGA, DVI, or DisplayPort).		

Boost Productivity with Dual Monitor Work Solution



Use two E231 monitors with an HP Adjustable Dual Display Stand (AW664AA) for a small footprint, high productivity work solution.

(Multi-monitor support depends on your PC capability. Monitors and stands are sold separately.)

Overview

Models: C9V75AA
E3F38AA (head only)

Technical Specifications

Panel	**Type**	TN (Twisted Nematic) LED Backlit LCD
	Viewable Image Area (diagonal)	**58,42 cm** (23 in) widescreen, diagonally measured
	Active Area (W x H)	**50,92 x 28,64 cm** (20.05 x 11.28 in)
	Aspect Ratio	16:9
	Viewing Angle (typical)	Up to 170° horizontal/160° vertical (10:1 minimum contrast ratio)
	Brightness (typical)*	250 nits (cd/m^2)
	Static Contrast Ratio (typical)*	1000:1
	Dynamic Contrast Ratio (typical)*	5,000,000:1
	Response Time (typical)*	5 ms (on/off)
	Pixel Pitch	0.265 mm
	Backlight Lamp Life (to half brightness)	30,000 hours minimum
	Color Gamut (typical)*	72%
	Color Support**	Can display up to 16.7 million colors
	*All performance specifications represent the typical specifications provided by HP's component manufacturers; actual performance may vary either higher or lower. ** With the use of FRC technology.	
On Screen Display (OSD) **Controls**	**Buttons or Switches**	Menu, Minus ("-"), Plus ("+") /Input Control, OK/Auto, Power
	Languages	10 (English, Spanish, German, French, Italian, Netherlands, Portuguese, Japanese, T-Chinese and S-Chinese)
	User Controls	Brightness, Contrast, Color, Image Control, OSD control, Management, Language, Information, Factory Reset, Input Control
Signal Interface/ Performance	**Horizontal Frequency**	24 to 94 kHz
	Vertical Frequency	50 to 76 Hz
	Native Resolution	1920 x 1080 @ 60 Hz
	Preset VESA Graphic Modes (non-interlaced)	1920 x 1080 @ 60 Hz 1680 x 1050 @ 60 Hz 1600 x 900 @ 60 Hz 1440 x 900 @ 60 Hz 1280 x 1024 @ 60 Hz 1280 x 720 @ 60 Hz 1024 x 768 @ 60 Hz 800 x 600 @ 60 Hz 720 x 400 @ 60 Hz 640 x 480 @ 60 Hz
	Maximum Pixel Clock Speed	200 MHz
	User Programmable Modes	Yes (10)
	Anti-Glare	Yes

Technical Specifications

	Default Color Temperature	6500 K	
Video/Other Inputs	**Plug and Play**	Yes	
	Input Connectors	VGA (analog), DVI-D, DisplayPort (HDCP support on DVI-D and DisplayPort)	
	USB	Integrated USB 2.0 hub with (2) Downstream and (1) Upstream ports	
	USB Cable	(1)USB cable, **1,8 m** (5.9 ft)	
	Video Cables	(1)VGA, (1)DisplayPort *APJ Specific:* *(1)VGA and (1)DVI-D cables are included. DisplayPort cable is only available in Australia and New Zealand).*	
	Video Cable Lengths	VGA, DisplayPort & DVI-D **1,8 m** (5.9 ft)	
	Audio	N/A	
	Audio Cable Length	N/A	
Power	**Power Supply**	Internal	
	Input Power	90 - 265 VAC at 45 - 63 Hz	
	Typical Power Consumption	33 W	
	Maximum	36 W	
	Power Saving	0.5 W	
	Power Cable Length	**1,9 m** (6.2 ft)	
Mechanical	**Dimensions** (W x D x H)	**Unpacked w/stand**	**54,4 x 24,24 x 46,99 cm** (21.42 x 9.54 x 18.5 in)
		Unpacked w/o stand (head only)	**54,4 x 5,1 x 32,9 cm** (21.42 x 2 x 12.95 in)
		Packaged	**62 x 18,3 x 51,8 cm** (24.41 x 7.2 x 20.39 in)
		Base area (footprint)	**16,95 x 24,24 cm** (6.67 x 9.54 in)
	Weight	**Head Only**	**3,9 kg** (8.5 lb)
		Unpacked	**6,1 kg** (13.6 lb)
		Packaged	**8,34 kg** (18.35 lb)
	Tilt Range	-5° to +30°	
	Swivel Range	Yes, 360°	
	Height Adjustable	Yes, 150 mm	
	Pivot Rotation	Yes, 90°	
	Base	Detachable	
Environmental	**Temperature - Operating**	**5° to 35° C** (41° to 95° F)	
	Temperature - Non-operating	**-20° to 60° C** (-4° to 140° F)	
	Humidity - Operating	20% to 80% non-condensing	
	Humidity - Non-operating	5% to 95%, 38.7° C max wet-bulb	

Technical Specifications

Altitude - Operating	**0 to 5,000 m** (16,404 ft)
Altitude - Non-operating	**0 to 12,192 m** (0 to 40,000 ft)
White LED Backlights	Yes
CCFL Panel	No
Arsenic-Free Display Glass[4]	Yes
Low Halogen[5]	Yes
Mercury- Free Display Backlighting	Yes

Environmental Data

Eco-Label Certifications & 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:

- IT ECO declaration
- US ENERGY STAR®
- TCO 06
- EPEAT® Gold where HP registers commercial display products. See http://www.epeat.net for registration status in your country US Federal Energy Management Program (FEMP)

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

	115VAC, 60Hz	**230VAC, 50Hz**	**100VAC, 60Hz**
Normal Operation	20.9 W	21.4 W	21.10 W
Sleep	0.2 W	0.27 W	0.21 W
Off	0.12 W	0.17 W	0.12 W

Heat Dissipation*	**115VAC, 60 Hz**	**230VAC, 50 Hz**	**100VAC, 60 Hz**
Normal Operation	71 BTU/hr	73 BTU/hr	72 BTU/hr
Sleep	1 BTU/hr	1 BTU/hr	1 BTU/hr
Off	0.4 BTU/hr	1 BTU/hr	0.4 BTU/hr

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

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.
- This product is in compliance with California Proposition 65 (State of California; Safe Drinking Water and Toxic Enforcement Act of 1986).
- This product is in compliance with the IEEE 1680 (EPEAT) standard at the Gold level, see www.epeat.net
- Plastics parts weighing over 25 grams used in the product are marked per ISO 11469 and ISO1043.
- This product contains 17.4 % post-consumer recycled plastic (by wt.)
- This product is 98.5 % recycle-able when properly disposed of at end of life.

Packaging Materials	**External:**	PAPER/Paper	750 g

	Internal:	PLASTIC/EPS (Expanded Polystyrene)	449 g
		PLASTIC/EPE-Expanded Polyethylene	26 g
		PLASTIC/Other plastics unknown	3 g

RoHS Compliance

Hewlett-Packard is committed to compliance with all applicable environmental laws and regulations, including the European Union Restriction of Hazardous Substances (RoHS) Directive. HP's goal is to exceed compliance obligations by meeting the requirements of the RoHS Directive on a worldwide basis. By July 1, 2006, RoHS substances will be virtually eliminated (virtually = to levels below legal limits) for all HP electronic products subject to the RoHS Directive, except where it is widely recognized that there is no technically feasible alternative (as indicated by an exemption under the EU RoHS Directive).

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):

- 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/go/reuse-recycle or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner. The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard web site at: http://www.hp.com/go/recyclers. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment.
	Hewlett-Packard Corporate Environmental Information	For more information about HP's commitment to the environment: Global Citizenship Report http://www.hp.com/hpinfo/globalcitizenship/gcreport/index.html Eco-label certifications http://www.hp.com/hpinfo/globalcitizenship/environment/productdesign/ecolabels.html ISO 14001 certificates: http://www.hp.com/hpinfo/globalcitizenship/environment/operations/envmanagement.html
Options (sold separately)	**HP LCD Monitor Quick Release – Part number EM870AA[1]**	An easy-to-use, VESA-compliant, LCD monitor mounting solution that allows you to quickly and securely attach an LCD monitor to a variety of stands, brackets, arms or wall mounts. For more information, refer to this product's QuickSpecs document.
	HP USB Graphics Adapter – Part number NL571AA	Enables connection of up to six simultaneous displays to help you boost productivity and multi-task across several open applications. Use one Adapter to bridge between a notebook or desktop PC and second monitor or use multiple Adapters to connect several displays to each other.
	HP Business PC Security Lock Kit – Part number PV606AA	Attaches to the rear of the PC with a six-foot steel cable that can be used to secure a PC or peripherals such as mice, keyboards, monitors or USB security devices to protect them against unauthorized removal by physically connecting the system to an anchor point.
	HP LCD Speaker Bar – Part number NQ576AA	Powered directly by the connected 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 dual external headphone jacks. Sold separately. For more information, refer to the product's QuickSpecs.
	HP Integrated Work Center 2 – Small Form	Designed specifically for use with the HP Compaq Small Form Factor (SFF) Desktop PC and a 17 to 24-inch (43.18 to 60.96 cm) diagonal monitor, the HP

Technical Specifications

	Factor (SFF) – Part number QP897AA	Integrated Work Center 2 (IWC) - Small Form Factor (SFF) provides a portable, compact workspace to help maximize space-constrained work environments. (17 to 24-inch diagonal monitors need to meet supported weight limits of 7.5 to 12.1 lbs. (3.38 to 5.5 kg). For more information, refer to the product's QuickSpecs.
	HP Single Monitor Arm – Part number BT861AA	The flexible design of the HP Single Monitor Arm provides a seemingly endless range of display adjustments with an amazing 13 inches of lift, 50 degrees of tilt, and 360 degrees of pan and rotation - all at your fingertips -- helping you stay comfortable and productive throughout the day.
	HP Adjustable Dual Display Stand – Part Number AW664AA	Premium space-saving dual screen solution provides access to more monitor real estate and makes it possible to manage multiple applications simultaneously. Weight adjustable for dual monitors from 17-24". Rotate displays into portrait/landscape positions.
	HP DVI to DVI Cable – Part number DC198A	Connect to external monitors with a DVI connector from an HP Compaq Business Desktop computer with a DVI connector. The cable is a single link cable with DVI-D support on both connectors. The cable will connect to either a DVI-D or DVI-I connector on the monitor and the graphics card.
What's in the box?	**Monitor and Accessories**	HP EliteDisplay E231 23-inch LED Backlit Monitor; VGA cable; DisplayPort cable; USB cable; AC Power cable *APJ Specific:* *(1)VGA and (1)DVI-D cables are included. DisplayPort cable is only available in Australia and New Zealand).*
	Documentation	Printed documentation and CD
	Featured Software	Yes, HP Display Assistant
Other	**User Guide Languages**	English, Arabic, S. Chinese, T. Chinese, Czech, Danish, Dutch, Finnish, French, German, Greek, Hungarian, Italian, Japanese, Kazakh, Korean, Norwegian, Polish, Brazilian Portuguese, Russian, Slovenian, Spanish, Swedish and Turkish.
	Warranty Languages	English, Arabic, S. Chinese, T. Chinese, Czech, Danish, Dutch, Finnish, French, German, Greek, Hungarian, Italian, Japanese, Kazakh, Korean, Norwegian, Polish, Brazilian Portuguese, Russian, Slovenian, Spanish, Swedish and Turkish.
	Color	Black
	VESA External Mounting	Yes (one set of standard 4-hole pattern, 100 mm)
	Security Lock-Ready	Yes
	Country of Origin	China
Certification and Compliance	CE, CB ,KC, KCC, NOM, PSB, ICE, TUV-S, CCC, CEL Grade 1, CECP, SEPA, TCO Certified Edge, EPA, ISC, VCCI ,FCC, HSMI, ENERGY STAR®, EPEAT® Gold[3]	
Compatibility	Compatible with platforms using the VESA standard video modes. Recommended for use with HP products.	
Service and Warranty	Protected by HP, including a 3 year standard limited warranty. Optional Care Pack Services are extended service contracts which go beyond your standard warranties.[2]	

Technical Specifications

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[1]The HP Quick Release has been designed to support a maximum of up to 24 lbs (10.9 kg) for all devices mounted. 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.
[2] HP Care Pack Services extend service contracts beyond the standard warranties. Service levels and response times for HP Care Packs may vary depending on your geographic location. Service starts from date of hardware purchase. To choose the right level of service for your HP product, use the HP Care Pack Services Lookup Tool at http://www.hp.com/go/lookuptool. Additional HP Care Pack Services information by product is available at http://www.hp.com/hps/carepack.
[3] EPEAT® Gold registered models of this product are available where HP registers commercial display products. See www.epeat.net for registration status in your country.
[4] Arsenic and its compounds were not detected using US EPA Test Methods 3052 & 3052/6010b by ICP or ICP-AES with a with a Method Detection Limit of 10 ppm.
[5]External power supplies, power cords, cables and peripherals are not Low Halogen. Service parts obtained after purchase may not be Low Halogen.

All 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.