



## Dome EX Display User's Guide

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# Product Information

The design of the Dome EX digital display takes into account every known measure to ensure your personal safety. Improper use of the display can result in electric shock, fire, or damage to the display. Read all instructions before setting up the display.

## Classification:

Shock Protection: Class I.

Degree of Protection Against Electric Shock: No applied part.

Degree of Protection Against Harmful Ingress of Water:  
Ordinary equipment (IPX0).

Degree of Safety in the Presence of Flammable Anaesthetic Mixture with Air or with Oxygen or Nitrous Oxide:  
Not suitable for use in the presence of a flammable anaesthetic mixture with air or with oxygen or nitrous oxide.

Mode of Operation: Continuous.

## Important recycle instruction:



LCD lamp(s) inside this product contain mercury. This product may contain other electronic waste that can be hazardous if not disposed of properly. Recycle or dispose in accordance with local, state, or federal laws. For more information, contact the Electronic Industries Alliance at [WWW.EIAE.ORG](http://WWW.EIAE.ORG). For lamp-specific disposal information, check [WWW.LAMPRECYCLE.ORG](http://WWW.LAMPRECYCLE.ORG).

## Symbol explanations



**DISPOSAL.** Do not use household or municipal waste collection services for disposal of electrical and electronic equipment. EU countries require the use of separate recycling collection services.



**CAUTION.** Read the accompanying text carefully, for proper operation and maintenance of the display system.



**DANGEROUS VOLTAGE.** Important precautions about electric shock. Read the accompanying text carefully, to prevent damage to components of the display system and for your safety.



**DIRECT CURRENT.**



**BAROMETRIC PRESSURE.** Transport and storage 12,000 meters (39,400 feet), maximum in unpressurized container



**RELATIVE HUMIDITY.** Transport and storage 5% to 90% (non-condensing).



**TEMPERATURE.** Transport and storage -10° to 60° C.

## Intended use

The Dome EX display is an AMLCD display designed for viewing medical X-ray images. This unit should not be used near patients and should be kept outside of 1.83 m perimeter and 2.29 m vertical.

This device must not be used in primary image diagnosis in mammography.

**CAUTION:** Federal law restricts this device to sale by or on the order of a medical practitioner.

## Safety precautions

External equipment intended for connection to signal input, signal output, or other connectors, must comply with the relevant IEC standard (EN/IEC 60601-1 series for medical electrical equipment). In addition, all such combinations (systems) must comply with the standard IEC 60601-1-1, Safety requirements for medical electrical systems.

Equipment not complying to IEC 60601 must be kept outside the patient environment, as defined in the standard as at least 1.5 meters from the patient or the patient support.

Any person who connects external equipment to signal input, signal output, or other connectors has formed a system and is therefore responsible for the system to comply with the requirements of IEC 60601-1-1. If in doubt, speak with a qualified technician.

### Safety tips

- Never open the display case, even when the power is off. Dangerous voltage inside may cause electric shock or death.
- To avoid damage to the display, use the grounded power supply and video cable supplied by Planar, or use certified replacements.
- Be sure the display is electrically grounded. You must connect the third grounding pin on the US power cord to a grounded outlet. The European power cord does not have a third grounding pin, but it must be plugged into a grounded outlet.
- If you cannot insert the plug into the outlet you plan to use, have a licensed electrician replace the outlet with a properly grounded outlet. If the power cord connects directly into the computer, make sure the computer is grounded.
- Keep the display dry if it is part of a surgical system. The display lacks protection against liquids or spills.
- **In locations where 240V outlets are used, connect the Dome EX display only to a center-tapped, 240V, single-phase supply (only for Canada and the United States).**

GROUNDING RELIABILITY CAN ONLY BE ACHIEVED WHEN EQUIPMENT IS CONNECTED TO AN EQUIVALENT RECEPTACLE MARKED "HOSPITAL ONLY" OR "HOSPITAL GRADE."

## Unpacking and handling tips

The Dome EX display is a precision instrument that requires proper care to maintain product operation and adherence to specification. Unpack the display and components carefully, then set up and handle the unit properly to avoid damage to the LCD panel.

- Use both hands to grasp the display case when lifting it from the shipping carton, but avoid touching the screen.
- Do not apply pressure to the screen or touch the screen with bare fingers or objects. Pressure can affect image quality. Cosmetics and oils on the skin are both detrimental to the screen and difficult to remove.
- Allow the display to warm up to room temperature before turning it on. Avoid sudden temperature changes in the environment, as this may cause condensation, which damages the display.
- Secure the display properly onto a standard VESA 100-mm mounting unit if you elect not to use the desk stand.
- Do not set up the display near strong light or heat sources.
- Do not block the vents on the back of the display or install the display in a built-in enclosure. Blocked vents cause excessive heat to build up inside the display, increasing risk of fire.
- When installing components, turn off your computer, but leave it plugged into a grounded outlet.
- Do not remove the back cover or disassemble the display. There are no user-serviceable parts inside.

## Preventing fire and injury

- Replace the power supply or cables if damaged.
- Use only the power source indicated in this guide or listed on the display.
- Do not plug the power supply into an overloaded AC outlet or extension cord. Overloaded AC outlets and cords can result in electric shock or fire.
- Do not drop or push objects into the display case. Internal components contain high voltage.
- Unplug the power cord from the wall outlet during thunderstorms.
- Do not place magnetic devices, such as motors, near the display.

## Cleaning the display

Observe the following guidelines to maintain the display and the LCD screen.

- Use a clean, lint-free, absorbent cotton cloth to clear off any residual glue from removal of the protective film or to remove surface dust. Apply light pressure to remove the dust.
- Dampen a clean cloth with a small amount of isopropyl alcohol to remove glue or dust if the screen is still not clean. Do not saturate the cloth; otherwise, alcohol may seep into the display case and collect in the enclosure. Use a clean, dry cloth to completely remove the alcohol residue.
- Do not use chemically treated dust cloths, acetone, toluene, or harsh solvents on the display case or the screen. They can damage the polarizer and the display case.
- Do not expose the display to water or excessive moisture. Do not allow water or other stains to stand on the unit. Wipe liquids off immediately to prevent damage to the display case and the screen.

**WARNING**  
**DISCONNECT SUPPLY BEFORE SERVICING**

**AVERTISSEMENT**  
**COUPER L'ALIMENTATION AVANT L'ENTRETIEN ET LE DEPANNAGE**



## Shipping/storing the display

Keep the display in its shipping container until installation. Return the display to its original container whenever you need to store the unit, move it to another location, or return it for repair. The packaging supplied by the manufacturer protects the display while it is in transit. See environment specifications for more information.

Before returning the display to the container, do the following:

- 1 Swivel the display panel in portrait mode.
- 2 Push the panel down to the lowest position.
- 3 Use the stand lock to anchor the panel.

## Disposal information

Follow your local governing ordinance and recycling policy for proper disposal or recycling of display components.



*AMLCD panel mounted on desk stand*



*Display controller*



*DC power adapter*



*Power cords*



*DVI cable*



*Quick reference*



*Display driver and calibration software*

# About the Display

The Dome EX display systems, ranging from 2 to 5 megapixels, consists of a TFT LCD panel and a display board and driver. The display's thin film transistors, in a transmissive-type display, use an integrated cold cathode fluorescent tube (CCFT) backlight system.

The display is designed for medical imaging in diagnostic settings, in portrait or landscape orientation, and comes fully tuned with gamma correction that complies with the DICOM Part 14 Standard. The all-digital design enables the display to produce the sharp, crisp images critical to softcopy medical viewing. Unwanted analog display image artifacts are eliminated.

Bundled with the display system, the Dome CXtra software enhances the functionality of the Dome EX display with a range of value-added services, such as DICOM calibration, error reporting, and backlight saver. Network management of Dome displays running the Dome CXtra software require the Enterprise Management Service for Dome CXtra. For more information, refer to Dome CXtra User's Guide.

## System Requirements

Display systems using the DX2 board:

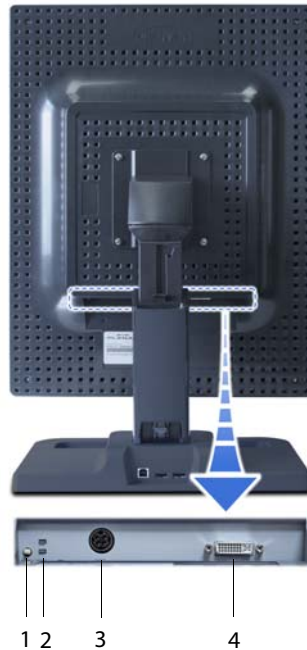
- PCI slot (64 bit recommended)
- 50 MB hard disk space
- 256 MB RAM
- CD-ROM drive
- Windows XP or Windows 2000 with Service Pack 4 or higher

Display systems using the AX3 board:

- Intel Pentium 4/Xeon; AMD Athlon 64/K7/XP or compatible
- PCI Express x16 lane slot
- 50 MB hard disk space
- 256 MB RAM
- CD-ROM drive
- Windows XP or Windows 2000 with Service Pack 4 or higher
- Power supply, 350 watts or greater

## Display Components

Review this illustration of the back panel to identify controls and ports on the display unit.







### Legend

- 1 Reset button. Restores the display configuration to its default setting.
- 2 LED status lights. Provides information about the status of the display.
- 3 DIN connector. Drives power to the display; 4-pin connector on the Dome E2 display, 8-pin connector on the Dome E3, Dome E3c, and Dome E5 displays.
- 4 DVI connector. Drives the data to the display.

## Display Positions

You can adjust the tilt, height, viewing angle, and orientation of the display to maintain an ergonomic and comfortable viewing position. Make sure that your eyes are level with the top of the display cabinet so that you look downward to read the screen contents. Select a suitable workspace for the display. You need a stable, level, and clean surface near a wall outlet.

Tilt range	Height range
 <p data-bbox="300 720 645 839">Adjust the tilt angle of the display so that the screen faces slightly down-ward from your angle of view.</p>	 <p data-bbox="683 720 1027 839">Unfasten the stand lock at the top of the desk stand (slide it to the left) then raise or lower the panel to adjust the height.</p>
Viewing angle	Orientation mode
 <p data-bbox="300 1198 625 1285">Swivel the display panel from side to side to adjust the viewing angle.</p>	 <p data-bbox="683 1198 1004 1316">Use both hands to turn the display 90 degrees counter-clockwise to move from portrait to landscape modes.</p>

## Desk Stand Features

Unfasten the stand lock to adjust display height. Remove the stand cover to thread the power cord and DVI cable connections to the display. To activate the USB hub function, the display must be connected to a USB-compliant computer or another hub with a USB cable. Even if the display is in power-saving mode, the USB devices function when connected to the USB ports of the display.

### Stand height lock



Move the stand lock lever to the left to adjust the height of the display.

### Stand cable cover



Press the PUSH button at the bottom of the desk stand and pull the stand cable cover down and out to remove it.

### USB hub



Use the integrated, bus-powered USB hub to attach USB devices to the display rather than to the computer.

# Installing the Display

Before you install the Dome DX2 or the AX3 display controller, remove any existing graphics card and its driver from your system. Also disable any onboard graphics capability on the motherboard. If you are installing the Dome DX2 board, you must set the DIP switches for your system configuration. See “Set the DIP Switch on the Dome DX2 Board” on page 7.

Dome Display	Dome DX2 Controller	AX3 Controller
E2	✓	
E3	✓	✓
E3c	✓	✓
E5	✓	

## Warning

**In locations where 240V outlets are used, connect the Dome EX display only to a center-tapped, 240V, single-phase supply (only for Canada and the United States).**

If you leave the computer turned on, you could get an electric shock and cause damage to the system components.

Remove the display controller slowly from its package and static-shielding bag to prevent an electrostatic discharge.

Static electricity can damage the controller. When touching the board or parts of the motherboard, take these precautions:

- Wear an antistatic wrist strap.
- Discharge your body's static electricity repeatedly by touching the power supply or the metal surface of the computer chassis.

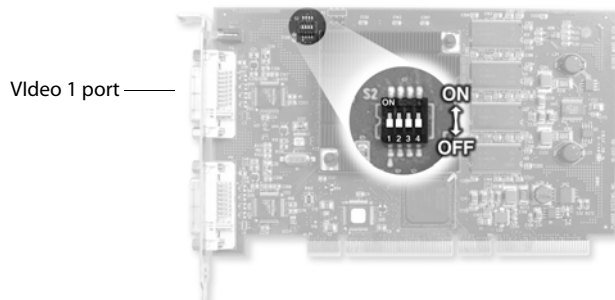


## Set the DIP Switch on the Dome DX2 Board

If you are using the Dome DX2 display controller, you need to enable or disable VGA mode according to your system configuration. Enable VGA on only one board when you install multiple Dome DX2 display controllers. Disable VGA on all Dome DX2 display controllers if you are using a separate VGA card. For VGA mode, slide switch 1 into the ON position.

For some Dell systems, you may need to enable VESA modes to see output on the screen during the boot process. If so, slide switch 2 into the ON position.

For single desktop mode, slide switch 3 into the ON position.



### Tips

- Access to ports. For displays mounted on a desk stand, rotate the LCD panel from portrait to landscape for access to the ports.
- Threading cables. Thread the DVI cable and power cord through the back of the stand. Make sure the cable and cord run through the notches. To reattach the stand cover, align the hooks with the slots on the stand. Press the cover into place. A click sound signals a secure connection.
- Multiple displays. Connect the first display of a two-headed system, or the only display of a one-headed system, to the Video 1 port. Connect all displays to the controller before you turn on the computer and install the driver. Use two displays to view two images simultaneously or one image across both displays.

## Install the Display Controller

Before you install the Dome DX2 or the AX3 display controller, choose a well-ventilated location with an adequate amount of space. Excessive heat cannot dissipate when display vents are blocked. Make sure a grounded AC outlet is within easy reach.

When installing multiple display controllers, install all boards before you install the display driver.

Turn your computer off. Leave the power cord plugged into the grounded outlet.

### To install the display controller

- 1 Remove the blank bracket from an available PCI or PCI Express slot.
- 2 Insert the display controller into the slot, align the connector pins, and press the board down until it is firmly seated. Secure the mounting bracket.



Use an available PCI or PCI Express slot.



Seat the board securely into the slot.

## Connect the Video and Power Cables

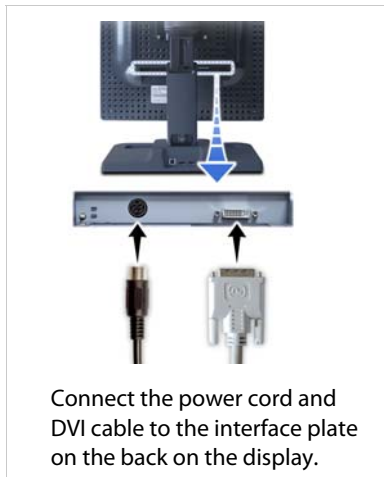
Turn your computer off. Leave the power cord plugged into the grounded outlet. Use the Dome EX display with the power adapter and video cable shipped.

For the Dome E2 display, the power adapter is the Ault MW116KA1249F53.

For the Dome E3, Dome E3c, and Dome E5 displays, the power adapter is the Ault MW122RA1223F52.

### To connect the cables

- 1 Plug one end of the DVI cable into the DVI port on the interface plate. Secure the connection.
- 2 Plug the power cord into the power input port on the interface plate.
- 3 Plug the other end of the DVI cable into the Video 1 port on the installed display controller. Secure the connection.
- 4 Plug the other end of the power cord into the power supply.
- 5 Plug the power supply cord into a grounded AC outlet.



## Install the Dome DX Display Driver

Before you install the driver, remove any previously installed display driver for the display controller from your system.

### To install the driver

- 1 Log on with administrator privileges. The InstallShield Wizard reports new hardware.
- 2 Click Cancel. You must run Setup.exe to install the driver.
- 3 Insert the W2KDXPCI CD and open the CD folder.
- 4 Double-click Setup.exe.
- 5 Click Next to proceed and start copying files.
- 6 If the Digital Signature Not Found message appears, click Yes or Continue to complete the driver installation.
- 7 Select Yes, I want to restart my computer now, and click Finish.

### To enable the display

- 1 Log on with administrator privileges.
- 2 Right-click the desktop. Select Properties > Settings.
- 3 Select the display icon.
- 4 Select Extend my Windows desktop onto this monitor. Click Apply.
- 5 Click OK.

### To change the display properties

Use the Dome tab to change display properties after the Dome EX display is attached to the Windows desktop. Otherwise, use Properties > Settings tab.

### To determine screen assignments

Click Identify in the Settings tab to match screens to display controllers. (Windows 2000 rennumbers and reassigns screens as you add them to the configuration. Set resolutions or preferences only after all display controller and screens are installed. Restart your system to make sure the screen assignments are retained.)

## Auto-orientation

When powering on or resetting your computer, the orientation of your panel is detected automatically, whether portrait or landscape. The default setting is ON. Use the Dome tab to disable this function.

## To set the resolution and palette

Use the Resolution field on the Dome tab to manually set the resolution to portrait or landscape.

- 1 Log on with administrator privileges.
- 2 Right-click the desktop. Select Properties > Settings.
- 3 Select the Plug and Play Monitor on Dome DX2/PCI Properties from the Display list.
- 4 Select Extend my Windows desktop onto this monitor. Click Apply.
- 5 Select Advanced > Dome.
- 6 Choose a resolution and palette option. Click Apply.
- 7 Click OK until you return to the desktop.

## To set brightness

In the Brightness field of the DOME tab, slide the scroll box left or right, or use the left and right arrows, to adjust each panel. (The default brightness is 100%.) Click OK. (Note: If the Dome CXtra software is running, the brightness function on the tab is disabled.)

## To set driver options

Beware that the Disable DirectDraw driver option has specific conditions which may affect the performance of your display. In the Driver Options field of the Dome tab, select Disable DirectDraw. Click Apply or OK.

## To get information

Information about the flat panel, display controller, and driver appears on the Dome tab. Panel information includes panel type, serial number, backlight usage, and onboard temperature (in degrees Celsius). The temperature reading of a panel is given when you first open the panel and if you later select it. The revision numbers of the firmware and microcontrollers are also included.

## Install the AX3 Display Driver

Before you install the driver, remove any previously installed display driver for the display controller from your system.

### To install the driver

- 1 Start the system. Click Cancel on the Found New Hardware Wizard. Click No when the system prompts you restart the computer.
- 2 Insert the driver installation CD and run SETUP.EXE.
- 3 Click Next.
- 4 Click Yes to the license agreement. The installation starts.
- 5 Follow the onscreen instructions to complete the installation. Planar recommends that you select the Express installation option.
- 6 When the Setup complete message appears, select Yes, I want to restart my computer now. and click Finish.
- 7 If the Digital Signature Not Found message appears, click Yes or Continue to complete the driver installation.

### To configure the display

- 1 Right-click the desktop and select Properties > Settings.
- 2 Use the native resolution of the display.
- 3 Click OK until you return to the desktop.

### To adjust the display properties

Use the Display Properties dialog to make changes to the video settings or to set up a dual-display configuration.

### To set the display mode manually

- 1 Right-click the desktop and select Properties > Settings.
- 2 Select the monitor that you want to change. Then click Advanced.
- 3 Click the Monitor tab. Make sure that the check box for Hide modes that this monitor cannot display is empty (unchecked).
- 4 Click the Adapter tab, then click the List All Modes button.
- 5 Choose the mode and click OK.
- 6 Click Apply or OK.

### To use a dual-display configuration

- 1 Right-click the desktop and select Properties > Settings.
- 2 Click the monitor icon 2. Then select Extend my Windows desktop onto this monitor.
- 3 Set the resolution and color quality for the second display.
- 4 Click Apply or OK.

### To set brightness

You must have the Dome CXtra software installed to change the display brightness. Adjust the value of the white level on the Backlight tab of the RightLight Panel Configuration.

# Appendix

Troubleshooting

Dome E2 Specification

Dome E3 Specifications

Dome E3c Specification

Dome E5 Specification

Video Modes

Connector Ports

LED Status Lights

Single Desktop

Auto Installation

Component Removal

Power Management

Grayscale Palette Options



## Troubleshooting

Problem	Possible Cause	Solution
No image appears on the screen	Computer is not powered on.	Turn on computer.
	Power cord is not securely connected.	Tighten power cord connection and turn on computer.
	Video cable connected incorrectly.	Make sure the first display of a dual-headed system or the only display of a single-headed system is connected to the Video 1 port on the Dome DX2 display controller.
VGA not enabled	Incorrect DIP switch settings.	You may need to remove the Dome DX2 display controller to check the DIP switch settings. You can enable VGA on the Dome DX2 display controller or use a separate VGA card.
Conflict with driver version	A previous version of the display driver is still installed on the computer system.	Remove any existing Dome display driver before you install a more recent version.
	The installation CD contains a file older than the one currently on your system.	The Confirm File Replace dialog box appears if the installation CD contains a file older than the one currently on your system. Click No to the question Overwrite the newer file? or click No to All.

## Dome E2 Specification

**In locations where 240V outlets are used, connect the Dome E2 display to only a center-tapped, 240V, single-phase supply (only for Canada and the United States).**

Category	Characteristic Item	Specification
Screen	Screen size diagonal	498 mm (19.6 in.)
	Resolution	1200 x 1600 pixels (portrait) 1600 x 1200 pixels (landscape)
	Pixel pitch	0.249 mm x 0.249 mm
	Pixel arrangement	Subpixel vertical stripe
	Active area (mm)	398.4 (H) x 298.8 (V)
	Grayscale supported	3061 shades of gray
	Refresh rate	60 Hz
	Contrast ratio	600:1 (typical)
	Brightness	900 cd/m <sup>2</sup> (when new)
	Pixel rise/fall time	40 ms (typical)
	Viewing angle	170° (± 85°) horizontal/vertical
Interface	Digital Video In	DVI Rev. 1.0 single digital channel connector
	Display control - brightness/contrast	DDC2B+
	Display identification	EDID read using DDC2B+
	USB hub	Universal Serial Bus (USB) Rev. 1.1: 1 uplink B port; 2 downlink A ports
	Display status	Dual-stack tricolor LEDs on back panel
Input formats	Landscape orientation	1600 x 1200 (8-bit and 24-bit per pixel)
	Portrait orientation	1200 x 1600 (8-bit and 24-bit per pixel)
	VGA to XGA/SXGA	640 x 480 to 1024 x 768 in both landscape and portrait rotations, 1280 x 1024 displayed in landscape rotation
	Screen type	AMLCD (active matrix liquid crystal display)
Physical	Display size (without stand)	440 mm x 343 mm x 95 mm (17.3 in. x 13.5 in. x 3.75 in.)
	Display weight (without stand)	5.5 kg (12 lb)
	Mounting options	Desktop stand (standard); 100-mm VESA mounting (optional)
Power	Adapter	Ault MW116KA1249F53 (CAUTION: Use only the power adapter supplied with the display unit.)

## Power Supply

CAUTION: Use only the power adapter supplied with the Dome E2 display unit; Ault MW116KA1249F53.

Category	Characteristic Item	Specification
Power input requirements	Voltage selection	Auto-ranging
	Voltage	100 – 240V AC
	Current	1.0 A
	Frequency	50 to 60 Hz
Power output requirements	Voltage	12 V DC $\pm$ 5%
	Current	6.67 A (80 W)
Physical	Size	127.0 mm x 76.2 mm x 44.5 mm (5 in x 3 in x 1.75 in)
	Weight	0.7 kg (1.5 lb)

## Reliability

Characteristic item	Specification
Display	MTBF >50,000 hours
Backlight	MTBF 50,000 hours to 50% brightness with backlight on continuously

## Environment

Characteristic item	Specification	
EMI shielding	No emission of low-level radiation	
Temperature	operating	0° C to 40° C
	storage	-10° to 60° C
Humidity	operating	10% to 80% Relative Humidity (non-condensing)
	storage	5% to 90% Relative Humidity (non-condensing)

## Dome E3 Specification

Model 933-0549-xx

**In locations where 240V outlets are used, connect the Dome E3 display to only a center-tapped, 240V, single-phase supply (only for Canada and the United States).**

Category	Characteristic Item	Specification
Screen	Screen size diagonal	528 mm (20.8 in.)
	Resolution	1536 x 2048 pixels (portrait) 2048 x 1536 pixels (landscape)
	Pixel pitch	0.207 mm, 123 ppi
	Pixel arrangement	Subpixel vertical stripe
	Active area (mm)	424.9 (H) x 318.0 (V)
	Color supported	256 shades of gray, programmable gamma from palette of up to 3061 shades
	Refresh rate	60 Hz
	Contrast ratio	900:1 (typical)
	Brightness	800 cd/m <sup>2</sup> (typical)
	Pixel rise/fall time	50 ms
	Viewing angle	170° (± 85°) horizontal/vertical
Interface	Digital Video In	DVI Rev. 1.0 digital dual-channel connector
	Display control - brightness/contrast	DDC2B+
	Display identification	EDID read using DDC2B+
	USB hub	Universal Serial Bus (USB) Rev. 1.1: 1 uplink B port; 2 downlink A ports
	Display status	Dual-stack tricolor LEDs on back panel
Input formats	Landscape orientation	2048 x 1536 (8- and 24-bit per pixel)
	Portrait orientation	1536 x 2048 (8- and 24-bit per pixel) with automatic hardware rotate
	VGA to SXGA	640 x 480 to 1280 x 1024 pixels displayed in both landscape and portrait rotations
	Screen type	AMLCD (active-matrix liquid crystal display)
Physical	Display size (without stand)	475 mm x 368 mm x 96 mm (18.7 in. x 14.5 in. x 4.0 in.)
	Display weight (without stand)	6.35 kg (<15 lb)
	Mounting options	Desktop stand with integrated USB (standard) 100-mm VESA mounting (optional)
Power	Adapter	Ault MW122RA1223F52 (CAUTION: Use only the power adapter supplied with the display unit.)

## Dome E3 Specification

Model 933-0548-xx

**In locations where 240V outlets are used, connect the Dome E3 display to only a center-tapped, 240V, single-phase supply (only for Canada and the United States).**

Category	Characteristic Item	Specification
Screen	Screen size diagonal	528 mm (20.8 in.)
	Resolution	1536 x 2048 pixels (portrait) 2048 x 1536 pixels (landscape)
	Pixel pitch	0.207 mm, 123 ppi
	Pixel arrangement	Subpixel vertical stripe
	Active area (mm)	423.9 (H) x 318.0 (V)
	Color supported	256 shades of gray, programmable gamma from palette of up to 3061 shades
	Refresh rate	60 Hz
	Contrast ratio	700:1 (typical)
	Brightness	800 cd/m <sup>2</sup> (typical)
	Pixel rise/fall time	35 ms
	Viewing angle	170° (± 85°) horizontal/vertical
Interface	Digital Video In	DVI Rev. 1.0 digital dual-channel connector
	Display control - brightness/contrast	DDC2B+
	Display identification	EDID read using DDC2B+
	USB hub	Universal Serial Bus (USB) Rev. 1.1: 1 uplink B port; 2 downlink A ports
	Display status	Dual-stack tricolor LEDs on back panel
Input formats	Landscape orientation	2048 x 1536 (8- and 24-bit per pixel)
	Portrait orientation	1536 x 2048 (8- and 24-bit per pixel) with automatic hardware rotate
	VGA to SXGA	640 x 480 to 1280 x 1024 pixels displayed in both landscape and portrait rotations
	Screen type	AMLCD (active-matrix liquid crystal display)
Physical	Display size (without stand)	475 mm x 368 mm x 96 mm (18.7 in. x 14.5 in. x 4.0 in.)
	Display weight (without stand)	6.35 kg (<15 lb)
	Mounting options	Desktop stand with integrated USB (standard); 100-mm VESA mounting (optional)
Power	Adapter	Ault MW122RA1223F52 (CAUTION: Use only the power adapter supplied with the display unit.)

## Dome E3 Specification

Model 933-0545-xx

**In locations where 240V outlets are used, connect the Dome E3 display to only a center-tapped, 240V, single-phase supply (only for Canada and the United States).**

Category	Characteristic Item	Specification
Screen	Screen size diagonal	541 mm (21.3 in.)
	Resolution	1536 x 2048 pixels (portrait) 2048 x 1536 pixels (landscape)
	Pixel pitch	0.2115 mm, 120 ppi
	Pixel arrangement	Subpixel vertical stripe
	Active area (mm)	433.2 (H) x 324.9 (V)
	Color supported	256 shades of gray, programmable gamma from palette of up to 3061 shades
	Refresh rate	60 Hz
	Contrast ratio	700:1 (typical)
	Brightness	800 cd/m <sup>2</sup> (typical)
	Pixel rise/fall time	35 ms
	Viewing angle	170° (± 85°) horizontal/vertical
Interface	Digital Video In	DVI Rev. 1.0 digital dual-channel connector
	Display control - brightness/contrast	DDC2B+
	Display identification	EDID read using DDC2B+
	USB hub	Universal Serial Bus (USB) Rev. 1.1: 1 uplink B port; 2 downlink A ports
	Display status	Dual-stack tricolor LEDs on back panel
Input formats	Landscape orientation	2048 x 1536 (8- and 24-bit per pixel)
	Portrait orientation	1536 x 2048 (8- and 24-bit per pixel) with automatic hardware rotate
	VGA to SXGA	640 x 480 to 1280 x 1024 pixels displayed in both landscape and portrait rotations
	Screen type	AMLCD (active-matrix liquid crystal display)
Physical	Display size (without stand)	475 mm x 368 mm x 96 mm (18.7 in. x 14.5 in. x 4.0 in.)
	Display weight (without stand)	9.07 kg (<20 lb) estimated
	Mounting options	Desktop stand with integrated USB (standard); 100-mm VESA mounting (optional)
Power	Adapter	Ault MW122RA1223F52 (CAUTION: Use only the power adapter supplied with the display unit.)

## Power Supply

CAUTION: Use only the power adapter supplied with the Dome E3 display unit; Ault MW122RA1223F52.

Category	Characteristic Item	Specification
Power input requirements	Voltage selection	Auto-ranging
	Voltage	100 – 240V AC
	Current	2.0 A
	Frequency	50 to 60 Hz
Power output requirements	Voltage	12 V DC $\pm$ 5%
	Current	10.0 A (120 W)
Physical	Size	228.6 mm x 76.2 mm x 50.8 mm (9 in x 3 in x 2 in)
	Weight	1.3 kg (2.75 lb)

## Reliability

Characteristic item	Specification
Display	MTBF >50,000 hours
Backlight	MTBF 50,000 hours to 50% brightness with backlight on continuously

## Environment

Characteristic item	Specification	
EMI shielding	No emission of low-level radiation	
Temperature	operating	0° C to 40° C
	storage	-10° to 60° C
Humidity	operating	10% to 80% Relative Humidity (non-condensing)
	storage	5% to 90% Relative Humidity (non-condensing)

## Dome E3c Specification

Model 933-0579-00

**In locations where 240V outlets are used, connect the Dome E3c display to only a center-tapped, 240V, single-phase supply (only for Canada and the United States).**

Category	Characteristic Item	Specification
Screen	Screen size diagonal	528 mm (20.8 in.)
	Resolution	1536 x 2048 pixels (portrait) 2048 x 1536 pixels (landscape)
	Pixel pitch	0.207 x 0.207 mm
	Pixel arrangement	R,G,B vertical stripe
	Active area (mm)	423.9 (H) x 318.0 (V)
	Color supported	Native 16 M colors (RGB 8-bit data)
	Refresh rate	60 Hz
	Contrast ratio	400:1 (typical)
	Brightness	400 cd/m <sup>2</sup> (typical)
	Pixel rise/fall time	50 ms (typical)
	Viewing angle	170° (± 85°) horizontal/vertical
Interface	Digital Video In	DVI Rev. 1.0 digital dual-channel connector
	Display control - brightness/contrast	DDC2B+
	Display identification	EDID read using DDC2B+
	USB hub	Universal Serial Bus (USB) Rev. 1.1: 1 uplink B port; 2 downlink A ports
	Display status	Dual-stack tricolor LEDs on back panel
Input formats	Landscape orientation	2048 x 1536 (24-bits per pixel, 8-bits per color)
	Portrait orientation	1536 x 2048 (24-bits per pixel, 8-bits per color) with automatic hardware rotate
	VGA to QXGA	640 x 480 to 1280 x 1024 pixels displayed in both landscape and portrait rotations
	Screen type	AMLCD (active-matrix liquid crystal display)
Physical	Display size (without stand)	475 mm x 368 mm x 96 mm (18.7 in. x 14.5 in. x 4.0 in.)
	Display weight (without stand)	9.07 kg (<20 lb) estimated
	Mounting options	Desktop stand with integrated USB (standard); 100-mm VESA mounting (optional)
Power	Adapter	Ault MW122RA1223F52 (CAUTION: Use only the power adapter supplied with the display unit.)



## Power Supply

CAUTION: Use only the power adapter supplied with the Dome E3c display unit; Ault MW122RA1223F52.

Category	Characteristic Item	Specification
Power input requirements	Voltage selection	Auto-ranging
	Voltage	100 – 240V AC
	Current	2.0 A
	Frequency	50 to 60 Hz
Power output requirements	Voltage	12 V DC $\pm$ 5%
	Current	10.0 A (120 W)
Physical	Size	228.6 mm x 76.2 mm x 50.8 mm (9 in x 3 in x 2 in)
	Weight	1.3 kg (2.75 lb)

## Reliability

Characteristic item	Specification
Display	MTBF 30,000 hours
Backlight	MTBF 30,000 hours to 25% brightness with backlight on continuously

## Environment

Characteristic item		Specification
EMI shielding		No emission of low-level radiation
Temperature	operating	0° C to 50° C
	storage	-10° to 60° C
Humidity	operating	8% to 80% Relative Humidity (non-condensing)
	storage	5% to 90% Relative Humidity (non-condensing)

## Dome E5 Specification

Model 933-0544-00

**In locations where 240V outlets are used, connect the Dome E5 display to only a center-tapped, 240V, single-phase supply (only for Canada and the United States).**

Category	Characteristic Item	Specification
Screen	Screen size diagonal	510 mm (20.1 in.)
	Resolution	2048 x 2560 pixels (portrait) 2560 x 2048 pixels (landscape)
	Pixel pitch	0.156 mm, 163 ppi
	Pixel arrangement	Subpixel vertical stripe
	Active area (mm)	399.4 (H) x 319.58 (V)
	Grayscale supported	3061 shades of gray
	Refresh rate	60 Hz
	Contrast ratio	600:1 (typical)
	Brightness	850 cd/m <sup>2</sup> (typical)
	Pixel rise/fall time	30 ms (typical)
	Viewing angle	170° (± 85°) horizontal/vertical
Interface	Digital Video In	DVI Rev. 1.0 single digital channel connector
	Display control - brightness/ contrast	DDC2B+
	Display identification	EDID read using DDC2B+
	USB hub	Universal Serial Bus (USB) Rev. 1.1: 1 uplink B port; 2 downlink A ports
	Display status	Dual-stack tricolor LEDs on back panel
Input formats	Landscape orientation	2560 x 2048 (8-bit per pixel)
	Portrait orientation	2048 x 2560 (8-bit per pixel)
	VGA to XGA/SXGA	640 x 480 to 1024 x 768, 1280 x 1024 displayed in both landscape and portrait rotations
	Screen type	AMLCD (active-matrix liquid crystal display)
Physical	Display size (without stand)	362 mm x 442 mm x 103 mm (14.3 in. x 17.4 in. x 4.1 in.)
	Display weight (without stand)	5.9 kg (13 lb)
	Mounting options	Desktop stand (standard); 100-mm VESA mounting (optional)
Power	Adapter	Ault MW122RA1223F52 (CAUTION: Use only the power adapter supplied with the display unit.)

## Power Supply

CAUTION: Use only the power adapter supplied with the Dome E5 display unit; Ault MW122RA1223F52.

Category	Characteristic Item	Specification
Power input requirements	Voltage selection	Auto-ranging
	Voltage	100 – 240V AC
	Current	2.0 A
	Frequency	50 to 60 Hz
Power output requirements	Voltage	12 V DC $\pm$ 5%
	Current	10.0 A (120 W)
Physical	Size	228.6 mm x 76.2 mm x 50.8 mm (9 in x 3 in x 2 in)
	Weight	1.3 kg (2.75 lb)

## Reliability

Characteristic item	Specification
Display	MTBF >50,000 hours
Backlight	MTBF 50,000 hours to 50% brightness with backlight on continuously

## Environment

Characteristic item	Specification	
EMI shielding	No emission of low-level radiation	
Temperature	operating	5° C to 35° C
	storage	-10° to 60° C
Humidity	operating	10% to 80% Relative Humidity (non-condensing)
	storage	5% to 90% Relative Humidity (non-condensing)

## Video Modes

Resolutions expressed in pixels (W x H). Single desktop requires dual displays.

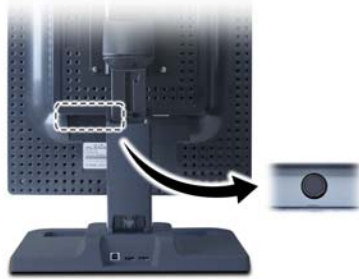
Display	Resolution	Orientation	Palette	Bits per pixel
Dome E2	1200 x 1600	Portrait	Dynamic gray Nonlinear gray Static gray	8
	1600 x 1200	Landscape		
	1200 x 1600	Portrait	True color	32
	1600 x 1200	Landscape		
Dome E3	1536 x 2048	Portrait	Dynamic gray Nonlinear gray Static gray	8
	2048 x 1536	Landscape		
	3072 x 2048	Portrait, single desktop		
	4096 x 1536	Landscape, single desktop		
	1536 x 2048	Portrait	True color	32
	2048 x 1536	Landscape		
	3072 x 2048	Portrait, single desktop		
	4096 x 1536	Landscape, single desktop		
Dome E3c	1536 x 2048	Portrait	True color	32
	2048 x 1536	Landscape		
	3072 x 2048	Portrait, single desktop		
	4096 x 1536	Landscape, single desktop		
Dome E5	2048 x 2560	Portrait	Dynamic gray Nonlinear gray Static gray	8
	2560 x 2048	Landscape		
	4096 x 2560	Portrait, single desktop		
	5120 x 2048	Landscape, single desktop		

## Connector Ports

The video signal connector is a standard DVI connector, driving data to the display.

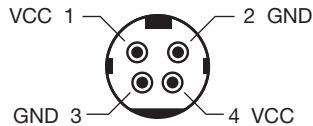
The Dome E2 display use a 4-pin DIN connector. The power input is  $12V \pm 5\%$  (80 W).

The Dome E3, Dome E3c, and Dome E5 displays use a 8-pin DIN connector. The power input is  $12V \pm 5\%$  (120 W).

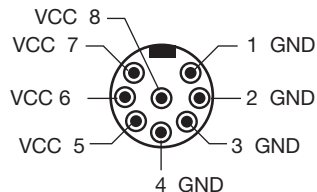


Location of power port on back of display

### Details of DIN connectors



4-pin connector on Dome E2 displays



8-pin connector on Dome E3, Dome E3c, and Dome E5 displays

## LED Status Lights

The two LEDs on the back panel provide information about the display.

- LED A describes the digital-link status between the display controller and the interface.
- LED B describes the display-panel status. it shows any faults currently in the panel.



## Power-up sequence information from LED

LED A	Action/Sequence	LED B	Action/Sequence
Dark	Initial power-on	Flashing yellow	Initial power-on
Blink yellow	Self test	Solid yellow	Power-on self test
Dark	One (1) second after power -on	Flashing green	Self test pass

## LED A status information after initial power-on

LED Status	Description
Solid green	Functional link – normal operation
Flashing yellow	Link working, unrecognized sync information
Solid yellow	Receiving DDC information

## LED B status information after initial power-on

LED Status	Description
Solid green	Functional system – normal operation
Flashing green	Fault
Solid yellow	DDC power-on, 12V power not detected
Alternating green/yellow	POST failure

## Single Desktop

On Windows systems, the single desktop supports the Dome E3, Dome E3c, and Dome E5 displays running the Dome DX2 controller. From one display controller, you can run a single desktop across two Dome EX displays.

The procedures in this section show you how to complete the initial installation of single desktop and how to change your system configuration to move from dual-headed display to single desktop.

On the display controller, switch 3 on the DIP switch must be in the ON position for each procedure.

### To set the display resolution

After you install the display controller and driver, use the Dome tab to set the display resolution for single desktop.

- 1 Right-click the desktop, and select Properties > Settings.  
The Settings tab appears.
- 2 Select the Plug and Play Monitor on Dome DX2/PCI Properties from the Display list. Make sure the box for Extend my Windows desktop onto this monitor is checked. Click Apply.
- 3 Select Advanced > Dome.
- 4 In the resolution field, choose the resolution for single desktop.
- 5 Click OK until you return to the desktop.



### To change the configuration to single desktop

If you are working on a dual-headed display, you can use the following procedure to change your hardware and software configuration to single desktop.

- 1 Use the InstallShield Wizard to uninstall the existing driver.
- 2 On the DIP switch, place switch 3 in the ON position.
- 3 Reinstall the display controller. Then attach both displays to the controller.
- 4 Power on the system, and run Setup.exe to install the driver.
- 5 Set the display resolution.

### To get information

Open the Dome tab to retrieve information on the two displays you are using to run single desktop. Information for both left and right panels appears at the bottom of the Dome tab.

#### Restoring dual heads

To return to dual-headed display, follow the procedure above but place switch 3 on the DIP switch in the OFF position. Then set the display resolution.

## Auto-Installation

The functionality of automatic installation allows you to install the Dome DX display driver silently without any user interaction. This option also configures display settings to meet the end user's configuration requirements.

Automatic installation enables all displays and rearranges the displays on the Windows desktop so that any attached third-party color monitor appears to the left of the Dome CX or Dome EX displays. All displays are arranged with top alignment. Automatic update/modify installations of a previous driver version, or of the same driver version already installed, leave the Windows desktop setting unchanged.

### System configuration requirement

If you have a third-party color monitor attached, you must complete the following three actions before you choose an installation option:

- Disable VGA on the Dome DX or DX2 display controller.
- Install the driver for the color monitor.
- Set the resolution higher than 800x600 with more than 256 colors.

## Installation options

Choose one of the four options to install or uninstall a display.

- Run `setup.exe` with no switches, or double-click the `setup.exe` icon. Normal installation that requires user interaction.
- Run `fastinst.bat`. Silent installation that enables all displays and rearranges the monitors on the Windows desktop so that any attached third-party monitor appears to the left of the Dome CX or Dome EX displays. All monitors are arranged with top alignment. The Dome DX display driver configures the Dome CX or Dome EX display with these default settings: 8-bit mode, static gray palette, DirectDraw enabled, and AutoOrientation (enabled only on Dome EX displays).
- Run `uninst.bat`. Silent uninstallation that automatically removes the DX display driver without user interaction.
- Run the user-provided installation batch file to invoke `setup.exe` with a list of switches. The list on [page 34](#) includes all of the supported switches.

-s	Silent mode. Use a response file instead of prompting user response during installation.
-f1 <path\response file>	Use the response file specified during installation. If no -f1 switch is given, the installation uses the response file in the same directory in which setup.exe resides.
-f2 <path\log file>	Save any output to the log file specified during installation. If no -f2 switch is given, the installation saves to the log file in the same directory in which the response file resides. This may cause a problem if setup is run from the CD-ROM drive.
-remove	Run uninstallation.
-bit8	Set all Dome CX or Dome EX displays to 8-bit mode (default).
-bit32	Set all Dome CX or Dome EX displays to 32-bit mode. Grayscale switches are ignored when this switch is specified.
-static	Set 8-bit mode to static gray palette (default).
-notstatic	Set 8-bit mode to dynamic gray palette.
-yesddraw	Enable DirectDraw (default).
-noddraw	Disable DirectDraw.
-autodetect	Enable AutoOrientation for Dome EX displays (default).
-noautodetect	Set all displays to portrait orientation.

Four sample batch files are provided with the Dome DX display driver. The content of each file, shown here, illustrates the use of these switches.

**fastinst.bat**

```
setup.exe -s -f2%TEMP%\fastinst.log
```

**uninst.bat**

```
setup.exe -s -f1un_install\setup.iss -f2%TEMP%\uninst.log -remove
```

**sample1.bat**

```
setup.exe -s -f2%TEMP%\sample1.log -bit8 -noddraw -static -noautodetect
```

**sample2.bat**

```
setup.exe -s -f2%TEMP%\sample2.log -bit8 -notstatic -yesddraw -noautodetect
```

## Display Driver Removal

Follow the appropriate procedure below to remove either the Dome DX or the AX3 driver from your system.

### To remove the Dome DX driver

- 1 Log on with administrator privileges.
- 2 Insert the W2KDXPCI CD and open the CD folder.
- 3 Double-click Setup.exe. The Welcome dialog box appears.
- 4 Select Remove, and click Next.
- 5 Click OK to confirm uninstall.
- 6 Select Yes, I want to restart my computer now, and click Finish.

### To remove the AX3 driver

- 1 Close all applications that are running.
- 2 Navigate to the Control Panel and select Add/Remove Programs.
- 3 Select your current graphics card drivers and select Add/Remove. Follow the wizard to remove your current display drivers.
- 4 Restart your system.

## Power Management

You have two ways to lower energy usage when the Dome EX display is idle:

- Dome CXtra Backlight Saver service (preferred)
- Screen Saver (set via Windows operating system)

Activate the power saver when you anticipate periods of inactivity, such as at the end of the work day. Once activated, Backlight Saver (or Screen Saver) automatically turns the backlight off during the period of inactivity. Backlight Saver and Screen Saver both extend the life of the backlight and reduce burn-in of images.

Do not use the Backlight Saver and Screen Saver concurrently.

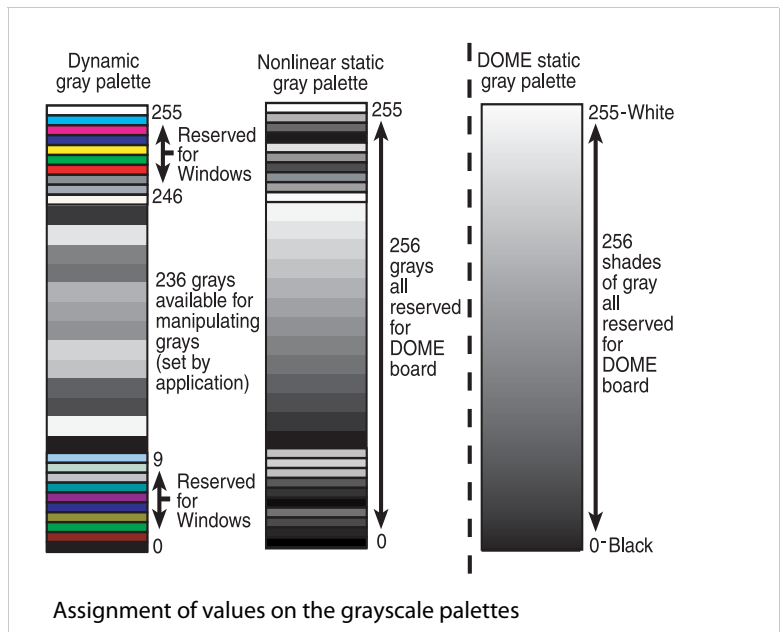
## Grayscale Palette Options

The Dome DX2 display controller supports different palette options on Windows systems. In the Palette Options field of the Dome tab, use the pull-down menu to select a palette. Then click Apply or OK.

Dome palette options must coordinate with the primary display. All flat panels must be set to either palette devices or non-palette devices, as shown in this table.

Palette Device	Non-Palette Device
Dynamic gray	<ul style="list-style-type: none"> <li>Nonlinear static gray</li> <li>Static gray</li> </ul>

All Dome display controllers that support multiple displays also support differing palette options on multiple screens attached to the same controller. See the assignment of values on the grayscale palettes below.





### Palette options with multiple displays

The SelectPalette and RealizePalette functions in the Microsoft Developer's Network, or MSDN, work across all flat-panel displays if the primary panel is palettized. The palettes of all palette-type devices are synchronized. If, however, the primary panel is not palettized, the SelectPalette and RealizePalette functions select the palette into the background, and palettized devices are not synchronized.

### Desktop icons

The palette specifications of the primary display determine how desktop icons are drawn. For example, the desktop icons appear gray on a color screen if the primary display is set to a gray palette.

### Dynamic gray palette

The dynamic gray palette reserves the first and last 10 entries in the palette for the Windows operating system, but you can manipulate the middle 236 entries. Your application can create a 256-entry gray ramp in any 8-bit driver by calling the Windows API function SetSystemPaletteUse(), but doing so causes all icons to be redrawn in black and white.

The dynamic gray palette accommodates gray-mapped Windows colors for the first and last 10 palette entries.

### Nonlinear static gray palette

The nonlinear static gray palette sets the first and last 10 palette entries to gray-mapped Windows colors. The middle 236 entries are ramped in ascending order, excluding the first and last 10 palette entries. Windows applications that use the first and last 10 palette entries as Windows colors display correctly on the screen.

Although the nonlinear static gray palette provides correct colors for applications using the Windows palette, colors display incorrectly if the application assumes that a static palette is always ramped.

## Static gray palette

The static gray palette provides 256 shades of gray in a static palette. This palette does not reserve the first and last 10 palette entries for icons and other standard Windows graphics, which frees the entire grayscale ramp for applications.

The static gray palette does not provide gray-mapped Windows colors for the first and last 10 palette entries. Because the framebuffer assumes the Windows palette is in use, applications that draw directly to the framebuffer display incorrectly. For example, icons and button bitmaps may display in black and white.

### Note

Applications cannot set the nonlinear static gray palette or the static gray palette. They must read the palette from the operating system and use it when drawing directly to the framebuffer.

Application colors display incorrectly if the application assumes all 8-bit framebuffers have palettes that can be set.

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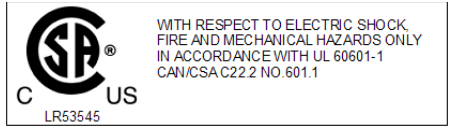
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# Regulatory Compliance

## Canada, European Union, United States

This display has been tested and found to comply with IEC/EN 60601-1 and IEC/EN 60601-1-2 standards, and is certified to meet medical standard C22.2 No. 601.1-M1990 (C US Mark).



The medical display, in addition to meeting medical requirements, has been tested and found to comply with the limits for Federal Communications Commission (FCC) Class B computing devices in a typically configured system since many medical offices are located in residential areas. It is the system integrator's responsibility to test and ensure that the entire system complies with applicable electromagnetic compatibility (EMC) laws.

Planar Systems, Inc. has made great efforts to support the medical device industry, in particular, medical device manufacturers and medical device system integrators. We offer state-of-the-art color displays that are compliant with worldwide accepted medical device safety standards, and for the European market, CE-marked displays based on compliance with council directive 93/42/EEC—commonly referred to as the Medical Device Directive (MDD). The following summarizes our qualification of these displays as it relates to compliance with the MDD.

The European Medical Device Directive requires that the intended use of the device be defined. The intended use of these displays is "to display alphanumeric, graphic, and image data as inputted from any type of medical device." These displays do not provide a measurement function in any way, and it is the device and systems manufacturer's responsibility to verify its function in the integrated device or system.

The display was classified as required by the MDD according to Annex IX of the directive and the medical device (MEDDEV) guidance available at the time of classification. Because the display uses electrical energy and has no direct patient connections and—by itself—no medical utility, the display is classified according to Rule 12 as an MDD Class I device, component, or accessory. The MDD states that manufacturers of Class I medical devices or accessories shall satisfy the requirements in regard to design and manufacturing controls, that is, the applicable assessment route to be used for CE-marking under the MDD, and it shall carry the CE mark according to Annex XII of the directive, with no notified body annotation.

The applicable safety standards for an MDD Class I display are IEC/EN 60601-1:1990 along with Amendments 1 and 2. To help the medical device designer evaluate the suitability of these displays, Planar has also conducted EMC testing to IEC 60601-1-2 as it can be applied. The display with its power supply alone does not represent a functional medical device. Hence, Planar configured a minimal operating system to exercise the display. The resulting data are made available to interested parties.

This is informative data, not certification data. Certification data must be obtained by the device or system integrator according to Article 12 of the MDD titled “Particular procedure for systems and procedure packs.” Paragraph 2 clearly outlines the device or system integrator’s responsibility in this matter.

In summary, Planar Systems, Inc. is CE-marking these displays under the Medical Device Directive, which establishes compliance to the basic medical safety standards. However, EMC compliance can only be accomplished in the configured medical device or system and is the responsibility of the device or system manufacturer. Planar has the necessary documentation such as IEC 60601-1 notified body and other third-party test reports and certifications, a risk/hazard analysis, an essential requirements checklist, and the Planar International Electrotechnical Commission (IEC) declaration of conformity.

Planar Systems, Inc., located in Beaverton, Oregon, USA, is the manufacturer of these displays in the meaning of the directive. As required by the MDD in Article 14, Planar Systems, Inc., not residing in the European Economic Area (EEA), has a European representative, Planar Systems, Inc.—Olarinluoma 9, P. O. Box 46, FIN-02201 Espoo, Finland (phone + 358 9 420 01; fax + 358 9 420 0200).

In the opinion of Planar Systems, Inc. registration required to put this device into commerce is the responsibility of the medical device/system manufacturer, and Planar supports this requirement by providing a European Commission (EC) declaration of conformity. If Planar supplies a display to an end user, rather than a device manufacturer, it is the end user's responsibility to ensure continued compliance with the MDD of the system in which the display is integrated.

The supplier will make available on request, circuit diagrams, component part lists, etc.

For vigilance reporting as required under Article 10 of the MDD, Planar Systems, Inc. will provide any information requested by competent authority to support any reported incident investigation by such an authority.

## EU Declaration of Conformity for Medical Application

A Declaration of Conformity has been filed for this product. For additional copies of the Declaration of Conformity document, contact Planar Systems.

The Dome EX digital flat-panel display meets the essential health and safety requirements, is in conformity with, and the CE marking has been applied according to the relevant EU Directives listed below, using the relevant section of the following EU standards and other normative documents;

EU EMC Directive 89/336/EEC

EU Electromagnetic Compatibility Directive

EN 60601-1-2 (2001) Medical Electrical Equipment	Section 1.2. Collateral standard electromagnetic compatibility requirements
EN 55011 (Class B)	Limits and methods of measurements for radio interference characteristics of industrial, scientific, and medical equipment
IEC 1000-3-2	Harmonic emissions
IEC 1000-3-3	Voltage fluctuations/flicker emissions
IEC 1000-4-2	Electrostatic discharge requirements for industrial process measurement and control equipment
IEC 1000-4-3	Radiated electromagnetic field requirements for industrial process measurement and control equipment
IEC 1000-4-4	Electrically fast transients for industrial process measurement and control equipment
IEC 1000-4-5	Surge requirements
IEC 1000-4-11	Voltage variations/dips/interrupts
IEC 1000-4-6	Conducted immunity
IEC 1000-4-8	Magnetic field immunity



Conformance to the Medical Device Directive 93/42/EEC

EN 60601-1 Medical Electrical Equipment	Part 1: General requirements for safety
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## U.S. FCC Compliance Statement

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.

NOTE: 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 instruction, 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 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/TV technical for help.

CAUTION: Changes or modifications to this equipment not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

## Australian

C-Tick Australian Communications Authority regulating product EMC compliance.

## China

CCC China Compulsory Certification regulating safety and EMC.

GB4943-2001

GB9254-1998 (Class A)

CB17625.1-2003

## Japan

VCCI Voluntary Control Council for Interference by information technology equipment sold in Japan.

## Korea

MIC Mark Ministry of Information and Communications.

# Standard Warranty

## Summary

- Standard 1-year “repair and return” warranty
- Industry-leading 10-year backlight warranty on grayscale displays\*
- A 2-year backlight warranty on color displays†
- Typical repair turnaround time of 10 business days

## Standard Warranty Return Procedure

As a Planar Standard Warranty customer, you must follow the procedure below if you have a non-functioning Dome EX display. The Planar customer service staff will attempt to correct any minor issues that may be causing the problem. Once Planar has determined that you have a non-functioning product, Planar will arrange for return and repair of the non-functioning product.

- 1 Contact Planar via the web at <http://www.planar.com/support>. In North America, call (866) PLANAR1 (866.752.6271). In Europe, call +358 9 420 01 or send your info by fax to +358 9 420 0200. Have the model number, serial number, and proof-of-purchase available.
- 2 Planar customer service staff will attempt to correct any minor issues that may be causing the problem. If we are unable to correct the problem to your satisfaction, we will issue a Return Material Authorization (RMA).
- 3 You must return the product, as specified, to Planar Systems. Planar will validate the defect, repair the unit, and return the unit to you. The typical turnaround time is 10 business days.

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\* If, within 10 years of initial purchase, the maximum output of the Dome EX grayscale display is determined by Planar Systems to be less than 300 cd/m<sup>2</sup>, Planar will repair or replace the display at the its sole discretion.

† If, within 2 years of initial purchase, the maximum output of the Dome E3c display is determined by Planar Systems to be less than 200 cd/m<sup>2</sup>, Planar will repair or replace the display at the its sole discretion.

## Summary Limitations and Exclusions of Dome Displays

- 1 Customer must provide original proof of purchase of the display system.
- 2 Warranty is void on any product with a defaced, modified, or removed serial number.
- 3 Warranty is void on any product with damage, deterioration, or malfunction resulting from the following:
  - a) Accident, misuse, neglect, fire, water, lightning, or other acts of nature, unauthorized product modification, or failure to follow instructions supplied with the product.
  - b) Repair or attempted repair by anyone not authorized by Planar.
  - c) Any damage of the product due to shipment.
  - d) Removal or installation of the product.
  - e) Causes external to the product, such as electric power fluctuations or failure.
  - f) Use of supplies or parts not meeting Planar's specifications.
  - g) Normal wear and tear.
  - h) Any other cause, which does not relate to a product defect.
- 4 Warranty excludes removal, installation, and setup service charges.

## Limitation of Implied Warranties

THERE ARE NO WARRANTIES, EXPRESS OR IMPLIED, WHICH EXTEND BEYOND THE DESCRIPTION CONTAINED HEREIN INCLUDING THE IMPLIED WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

## Exclusion of Damages

THE LIABILITY OF PLANAR IS LIMITED TO THE COST OF REPAIR OR REPLACEMENT OF THE PRODUCT. PLANAR SHALL NOT BE LIABLE FOR THE FOLLOWING:

- 1 DAMAGE TO OTHER PROPERTY CAUSED BY ANY DEFECTS IN THE PRODUCT, DAMAGES BASED UPON INCONVENIENCE, LOSS OF USE OF THE PRODUCT, LOSS OF TIME, LOSS OF PROFITS, LOSS OF BUSINESS OPPORTUNITY, LOSS OF GOODWILL, INTERFERENCE WITH BUSINESS RELATIONSHIPS, OR OTHER COMMERCIAL LOSS, EVEN IF ADVISED OF THEIR POSSIBILITY OF SUCH DAMAGES.
- 2 ANY OTHER DAMAGES, WHETHER INCIDENTAL, INDIRECT, CONSEQUENTIAL OR OTHERWISE.
- 3 ANY CLAIM AGAINST THE CUSTOMER BY ANY OTHER PARTY.

## Effect of Local Law

This warranty gives you specific legal rights, and you may have other rights, which vary from locality to locality. Some localities do not allow limitations on implied warranties and/or do not allow the exclusion of incidental or consequential damages, so the above limitations and exclusions may not apply to you.



America Sales  
Planar Systems, Inc.  
1195 NW Compton Drive  
Beaverton, OR 97006-1992 USA  
(503) 748-1100 phone  
(503) 748-1493 fax

Medical Sales  
Planar Systems, Inc.  
400 Fifth Avenue  
Waltham, MA 02451-8738 USA  
(781) 895-1155 phone  
(781) 895-1133 fax

[medicalsales@planar.com](mailto:medicalsales@planar.com)  
[medicalsupport@planar.com](mailto:medicalsupport@planar.com)  
[www.planar.com](http://www.planar.com)

Europe Sales  
European Representative  
Planar Systems, Inc.  
Olarinluoma 9, P. O. Box 46  
FIN-02201 Espoo, Finland  
+ 358 9 420 01 phone  
+ 358 9 420 0200 fax

[vertrieb@planar.com](mailto:vertrieb@planar.com)  
[medicalsupport@planar.com](mailto:medicalsupport@planar.com)  
[www.planar.com](http://www.planar.com)

Asia-Pacific Sales  
Planar Systems, Inc.  
388 Nan Jing West Road, Suite 3905  
Shanghai Peoples Republic of China  
+ 86 21 6334 5050 phone  
+ 86 21 6334 6339 fax

[sales@planar.com.cn](mailto:sales@planar.com.cn)  
[support@planar.com.cn](mailto:support@planar.com.cn)  
[www.planar.com.cn](http://www.planar.com.cn)

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