digital™

PCXAV-Yx Multi-Scanning Color Monitor

Installation Guide

Digital Equipment Corporation

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USA FCC Notice
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. Any changes or modification made to this equipment may void the user's authority to operate this equipment.
This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio and television reception; 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 of the following measures:
- Re-orient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

DO NOT attempt to modify this equipment. If modified, the FCC may void your authority to operate this equipment.

Canadian Department of Communications Statement
This Class B digital apparatus meets all requirements of the Canadian Interference Causing Equipment Regulations.

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Symbol	Meaning
	NOTE: Provides general information.
	CAUTION: Provides information to prevent damage to equipment.
	WARNING: Indicates the presence of a hazard that can cause personal injury if the hazard is not avoided.

Introduction

Overview

The PCXAV-Yx Monitor is a 17-inch, 16.0" viewable, multi-scanning color monitor with high resolution, compatible with VGA, SVGA, 1024 x 768, and 1280 x 1024 non-interlaced modes. The PCXAV-Yx offers the following features:

- On-screen display for geometric and color adjustments and moiré-clear function
- Power management system
- VESA DDC1/2b function for "Plug 'n Play"
- Complies with Swedish MPR2 standards for low emissions*
- Complies with Swedish TCO '92 standards for even lower emissions**
- Anti-glare screen with anti-static coating
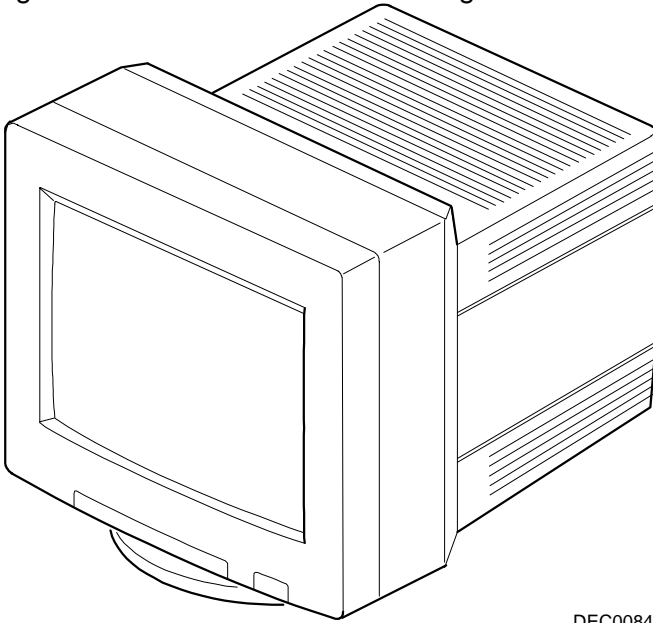
DEC00840

*Models PCXAV-YW, -YX.
**Models PCXAV-YY, -YZ.

Figure 1. PCXAV-Yx Color Monitor

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Power Management

This monitor has a power management system that exceeds the EPA ENERGY STAR™ requirements for saving energy.

"Plug 'n Play" Feature

The system will perform the "Plug 'n Play" feature if both the monitor and the host implement DDC protocol. DDC, Display Data Channel, is a communication channel over which the monitor automatically informs the host system about its capabilities. DDC uses a formerly unconnected signal pin in the 15-pin VGA connector.

Installation

Installation/Operating Guidelines

Observe the following basic rules for installation and use.

Do . . .

- Use the power cord supplied with the monitor, which is UL-, CSA-, and VDE-approved.
- Turn the monitor off when not being used for an extended period of time, or use Power Management if applicable.

Do Not . . .

- Overload the ac outlet.
- Move the monitor on a stand over carpet or thresholds.
- Push objects into the monitor's openings.
- Add accessories that are not designed for this monitor.
- Operate the monitor near water or in a damp environment, which could cause an electrical hazard.
- Operate the monitor near magnets, motor devices, transformers, high power lines, or large steel pillars, which can cause distortion in the picture.
- Obstruct the ventilation openings in the monitor's cabinet, such as placing the monitor on a rug or within an enclosure.
- Place the monitor near a radiator or heat source.

Monitor Installation

To connect your monitor:

1. Make sure the power to the monitor and the computer is off.

2. Connect the signal cable to the monitor using the 15-pin connector (**2**), then to the 15-pin interface connector on the High Resolution Graphic Video Adapter on the back of the computer.

3. Plug the ac power cord to the monitor (**1**), then to a properly grounded ac electrical outlet.

   Note: The DIN connector (**3**) is a serial control input. It is not used.

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1   3 2
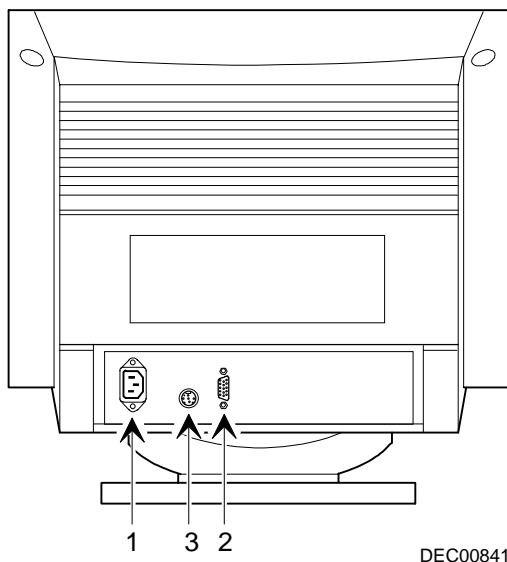
Figure 2. PCXAV-Yx Monitor (Rear View)

Turn On Power to Monitor

1. Push the power switch button (**1**) to turn on the monitor.

2. The power indicator LED (**2**) in the button should light green. If it does not, refer to the troubleshooting table in the Service section.
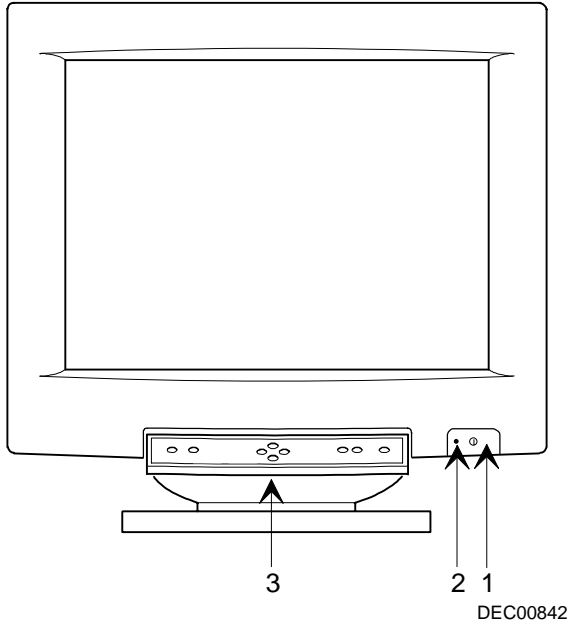
3. For screen alignment, use the monitor controls (**3**).

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Figure 3. Monitor Control Panel

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Monitor Adjustments

Figure 4 shows the monitor controls. Table 1 defines their function.
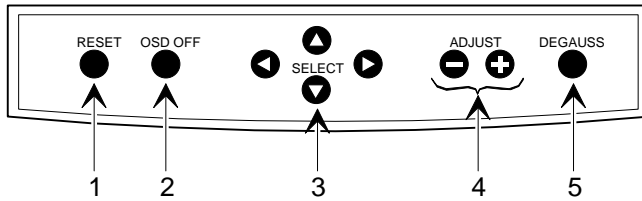
DEC00843

Figure 4. Monitor Controls

Table 1. User Controls and Functions

Item	Control	Function
1	Reset	Recalls factory default settings: • When adjusting alignment settings, it restores the factory geometry and size settings if the video input signal corresponds to one of the factory preset timing signal. • When adjusting the color, it restores the factory color for the selected color memory number.
2	OSD Off	Turns off the on-screen display (OSD).
3	– + Adjust	Decreases or increases the value for the selected control.
4	◀▶ ▲▼ Select	Displays the OSD menus and selects the functions within them.
5	Degauss	Clears picture impurity caused by moving the monitor to a new location.

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Contrast and Brightness

Press any of the Select buttons to display the Contrast and Brightness menu.
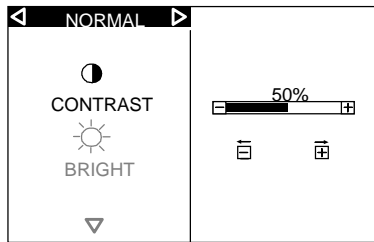
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Figure 5. Contrast and Brightness Menu

Table 2. Contrast and Brightness

Icon	Function	Use the – and + buttons to...
◐	Contrast	Adjust white level for comfortable viewing.
▶	Select Enhanced mode.	-
▼	Move down and select the next menu.	-
☼	Brightness	Adjust black level for comfortable viewing.

If needed, press both the – and + buttons at the same time to restore the factory preset levels.

When at the Normal position at the top of the screen, pressing either ◀ or ▶ button returns the screen to normal video. If no adjustments are made within 10 seconds, the screen also returns to normal video.

Press the ▼ button to select the geometric adjustment menu.

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Geometric Adjustments

The geometric adjustment menu (Figure 6) is used to make minor adjustments to the video display, which may vary with the input frequency or your geographical area.
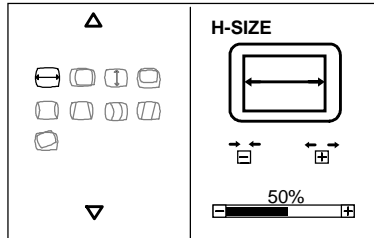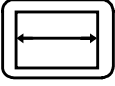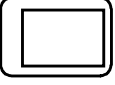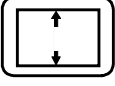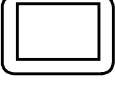
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Figure 6. Geometric Adjustment Menu

Use the following procedure to make the geometric adjustments.

Press...	To...
▼	Select the geometric adjustment menu.
◀,▶, ▼, ▲	Select the adjustment patterns.
– +	Decrease or increase the value. See Table 3 for details.

Table 3. Geometric Adjustments

Icon	Name	Use the – and + buttons...
	H-Size	To adjust the width of the image.
	H-Phase	To move the image to the left or to the right.
	V-Size	To adjust the height of the image.
	V-Phase	To move the image down or up.
	PCC-Amp	To adjust the sides of the image from bowing in or out.
	PCC-Phase (Trapezoid)	To adjust the top and bottom of the image to be the same.
	Pin-Balance	To move the center of the image left or right.
	Key-Balance	To adjust the slope of image so it is perpendicular.
	Rotation	To rotate the image. Press both the – and + buttons at once to restore the factory preset level.

NOTE: After making any adjustment in the size of the image, wait a few seconds before changing the image again, disconnecting the signal cable, or powering off the monitor, so the adjustment is saved in memory.

Color Balance

Figure 7 shows the color balance menu to select the temperature of the red, green, and blue color. There are three color balance menus, one each for *Color-1, Color-2,* and *Color-3.*
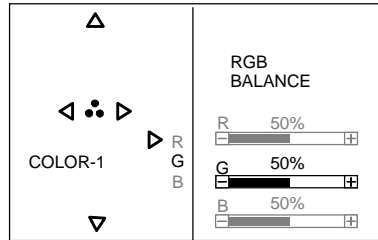
DEC00861
Figure 7. Color Balance Menu

Use the following procedure to adjust the color balance temperature.

Press...	To...
▼	Select **RGB balance** menu.
◀ and ▶	Select *Color-1, Color-2*, or *Color-3*.
▼ and ▲	Select red (R), green (G), or blue (B).
− +	Decrease or increase the value.

NOTES: For ergonomic reasons, do not use the blue color on a dark background. Eye strain may result due to a low contrast.

When using a light background, use a vertical frequency of 70 Hz or higher.

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Power-Save

When on, the power-save feature reduces the power consumption of the
monitor when not in use.

Press...	To select...
▼	**Power-Save**.
–	Constant power mode.
+	Power-save mode.

When power save is on, two seconds before it goes into the power saving mode,
the following is displayed:
```
POWER-SAVE
```

Moiré-Clear

If an input frequency causes the background of the screen to appear as if it has
waves on it, use the moiré-clear menu to reduce or eliminate the waviness.

Press...	To...
▼	Select **Moiré-Clear**.
–	Set moiré-clear off.
+	Set moiré-clear on.
▼	Select **Level**.
–	Decrease the level of the moiré-clear wave.
+	Increase the level of the moiré-clear wave. Over adjustment may degrade the picture sharpness.

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Enhanced Mode Adjustments

From the Contrast menu, pressing the ◀ or ▶ button displays the Enhanced Mode adjustment menu (Figures 8 and 9). Tables 4 and 5 describe these adjustments.
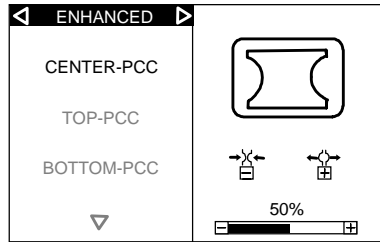
DEC00859

Figure 8. Enhanced Mode Adjustment Menu

Table 4. Enhanced Mode Adjustments

Name	Use the – and + buttons...
Center-PCC	To decrease or increase the center of the image horizontally.
Top-PCC	To increase or decrease the width of the image at the top of the screen.
Bottom-PCC	To increase or decrease the width of the image at the top of the screen.

Press the ▼ button to continue with the Enhanced Mode adjustments.

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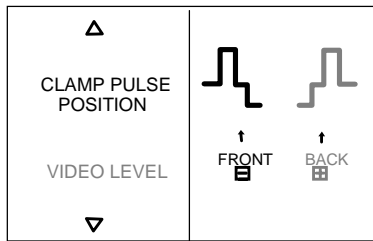
DEC00860

Figure 9. Enhanced Mode Adjustment Menu (Continued)

Table 5. Enhanced Mode Adjustments Continued

Name	Use the – button...	Use the + button...
Clamp Pulse Position	To Clamp the video signal to the front of the H-Sync signal.	To clamp the video signal to the back of the H-Sync signal.
Video Level	To select 1.0 V as the video input.	To select 0.7 V as the video input. This is the default value for PC monitors.

Servicing

Cleaning the Monitor

To clean the monitor:
1. Unplug the monitor.
2. Clean the monitor with a soft, slightly damp cloth. **Do not** use an aerosol cleaner directly on the screen.

> ⚠ **CAUTION:** Do not use benzene, thinner, or any volatile substance to clean the monitor, as these products may discolor the monitor's cabinet. Likewise, do not place rubber or vinyl on the monitor.

Maintenance and Troubleshooting

Identifying and Correcting Problems

The following can be sources of problems:
*   Communications cables
*   Host system
*   Nearby power or electrical sources

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Troubleshooting Table

Use Table 6 to identify and correct any problem area.

Table 6. Identifying and Correcting Problems

Symptom	Possible Cause	Suggested Solution
Display does not appear; LED is off.	There is no power.	Check the power cord. Use another ac outlet.
Display does not appear; LED is on.	Brightness or contrast control is set too low.	Increase the brightness and contrast control settings.
Display does not appear; LED is blinking.	Power Management feature is active in the off state.	Press any key and allow 20 seconds for monitor to warm up.
	Computer power switch is off.	Turn on the computer.
	Signal cable is disconnected.	Check the monitor cable to see that it is secure.
ATTENTION NO SIGNAL H OFF V OFF Please check input signal or connection.	This message is displayed when the Power-save feature is off and the sync signal is not available.	Check the input signal, the signal cable connection, and the signal frequency setting.
ATTENTION Signal is out of range. Please change signal timing.	This message is displayed when the signal frequency is out of range.	Check the input signal, the signal cable connection, and the signal frequency setting.
Display is dark or too bright.	Video select signal may be in appropriate.	Check the Video Level for 0.7 V or 1.0 V input.

Table 6 (cont.) Identifying and Correcting Problems

Symptom	Possible Cause	Suggested Solution
Color impurity	Magnetic fields can build up on the CRT.	Press the Degauss switch to demagnetize the CRT. While adjusting color gain levels, press the Reset button to restore the color for the selected color number -1, 2, or 3.
Excessive green or white background.	Both external sync and sync-on-green signals are being used.	Change the setting of the Clamp Pulse Position in the Enhanced adjustments.
Video display has moving dots and distorted lines. The display rolls or flickers.	There is electromagnetic interference. Adjustments may be out of alignment.	Move any electromagnetic device, such as a fan or motor, away from the monitor or move the monitor. Press the Reset button.
Unstable picture.	Input signal frequency disagreement, or CGA, MDA, or EGA mode not available.	Check the specifications of the graphics adapter and monitor.
Background of the screen appears as if it has waves on it.	Input frequency	Use the moiré-clear and level menu items to reduce or eliminate the waviness.
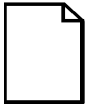
NOTE: Two fine horizontal lines may be visible on the screen. This is normal for all aperture grille type displays. The monitor is not defective. The fine lines are shadows of the damper wires, which reduce the susceptibility of the CRT's aperture grille to shock or vibration.

Aperture Grille Type
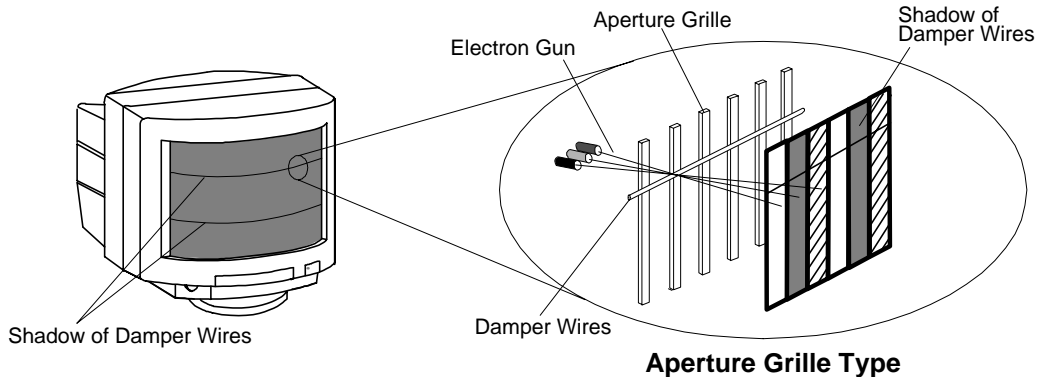
DEC00862-2

Figure 10. Shadow of Damper Wires

Specifications

Scanning Modes

Table 7. Display Modes and Addressability

Mode	Display Mode	Address-ability	Horizontal Frequency (KHz)	Vertical Frequency (Hz)	H Sync	V Sync
1	VGA 60	640 x 480	31.47	59.94	–	–
2	VGA VESA 75	640 x 480	37.50	75.00	–	–
3	DOS 70	720 x 400	31.47	70.08	–	+
4	SVGA/60	800 x 600	37.88	60.32	+	+
5	SVGA VESA 75	800 x 600	46.875	75.00	+	+
6	800 x 600 VESA 85	800 x 600	53.67	85.06	+	+
7	VESA 70	1024 x 768	56.48	70.07	–	–
8	1024 x 768 VESA 75	1024 x 768	60.02	75.03	+	+
9	1024 x 768 VESA 85	1024 x 768	68.68	85.00	+	+
10	1152 x 864 VESA 75	1152 x 864	67.50	75.00	+	+
11	1280 x 1024 60 Hz	1280 x 1024	63.98	60.02	+	+
12	1280 x 1024 75 Hz	1280 x 1024	79.98	75.025	–	–

Monitor Specifications

Table 8. Monitor Specifications

Monitor	43 cm (17-inch, 16.0 maximum viewable) non-glare, non-static, multilayer optical coating
Active Area	30.0 x 22.5 cm (11.8 x 8.86 in)
Height	40.9 cm (16.1 in), includes tilt/swivel base
Width	41.0 cm (16.1 in)
Depth	42.5 cm (16.7 in)
Swivel	$\pm 90°$
Tilt	-5° to +15°
Weight	22 kg (48.4 lb)
Video Signal	0.7V and 1.0V p-p R, G, B color.
Sync	Separate (positive or negative), sync on green, or composite.
Input impedance	75 Ω (video); 1k Ω (sync)
Horizontal Scan Rate	30 - 86 kHz
Vertical Refresh Rate	50 - 130 Hz, non-interlaced
Connector	15-pin D-sub (DB9-15P); DIN-8P (Serial control)
Power input	100 - 120, 220 - 240 Vac, 50 - 60 Hz. 120 W (nominal)
Environment	
Operating Temperature	5° - 40°C
Humidity	10 - 90% relative humidity (noncondensing)

Power Management System

The monitor has three power-saving states indicated by the LED on the front panel. A personal computer can control these states to reduce the monitor's output power levels while not in use, thus saving energy. For proper operation, make sure that the monitor signal cable is connected to the host system and that the host is On.

Table 9. Power Saving States

LED	State	Power Consumption (Watts)*	Recovery Time
Green (Normal)	On	120 (max)	n/a
0.5 s blinking	Standby	< 96	3 s
2.0 s blinking	Suspend	< 15	5 s
3.0 s on 1.0 s off	Off	< 8	15 s

*These power-saving states exceed the Environmental Protection Agency (EPA) Energy Star requirements using the Video Electronics Standards Association (VESA) methodology for Display Power Management Signals.

Environment

This monitor has been designed and manufactured to minimize the impact to the environment.

Acoustic Levels

Preliminary declared values per ISO 9296 and ISO 7779:

	Sound Power Level[1] L_{Wad} B		Sound Pressure Level[2] L_{pAm} dBA	
	Idle	Operate	Idle	Operate
PCXAV-Yx	N/A	<3.1	N/A	<23

[1] 1 B = 10 dBA
[2] Operator position

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Asbestos

This monitor does not use asbestos in any form.

Ozone Depleting Substances (ODS)

The monitor is in full compliance with the labeling requirements in the U.S. Clean Air Act Amendments of 1990. It does not contain, nor is it manufactured with, a Class 1 ODS, as defined in Title VI section 611 of this act.

Plastics

Plastics used in the enclosure do not contain heavy metals, such as cadmium or chromium, nor do they contain flame retardants utilizing PBBs, PBDEs, or PBDOs (polybrominated biphenyls, and polybrominated diphenyl ethers and oxides). The plastic enclosure is not made of rigid PVC.

Recyclable Materials

The plastic parts in the monitor incorporate a marking per international standard ISO 1043, which allows the plastic to be identified for recycling. The packaging material can be recycled, or you can save it to return the monitor to a service center for repair or disposal.

Monitor Disposal

⚠	**WARNING:** If you need to dispose of a monitor, ask a qualified service representative for the proper procedure. Improper disposal could result in personal injury from implosion.