

VRC16  
Color Autoscanning Monitor  

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Installation and User Manual

Part Number: ER-VRC16-IG:002

Digital Equipment Corporation  
Maynard, Massachusetts

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**August 1991**

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## **WARNING**

To prevent fire or shock hazard, do not expose the unit to rain or moisture. Dangerously high voltages are present inside the unit. Do not open the cabinet. Refer servicing to qualified personnel only.

### **FEDERAL COMMUNICATIONS COMMISSION (FCC) STATEMENT**

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 when operating only in modes up to and including 1024 x 768. When operated in the Class B mode, the following provisions apply:

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 instructions, may cause interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause 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 the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

When operating in modes greater than 1024 x 768 this monitor has been verified to meet FCC Class A standards. When operating in the Class A mode the following provisions apply:

These limits are designed to provide reasonable protection against harmful interference when used in a commercial environment.

This equipment generates, uses and can radiate radio frequency energy and if not installed and used in accordance with the instructions, may cause interference to radio communications.

Operation of this equipment in residential areas is likely to cause interference in which case the user will be required to correct the interference at his own expense.

To assure continued FCC emission limit compliance, the user must use only the power supply cord and shielded interface cable provided when connecting to a host computer. Also, any unauthorized changes or modifications to this equipment may void the users authority to operate this monitor.

### **CANADIAN DEPARTMENT OF COMMUNICATIONS STATEMENT**

When operating in modes up to and including 1024 x 768 this equipment does not exceed Class B limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

When operating in modes above 1024 x 768 this equipment complies with Class A limits for radio noise emissions from digital apparatus. Operation in a residential area may cause unacceptable interference to radio and TV reception requiring the owner or operator to take whatever steps are necessary to correct the interference.

Lors de son fonctionnement en mode inférieur ou égal à 1024 x 768 cet équipement n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de classe B. Ces limites sont prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.

Pour un fonctionnement en mode supérieur à 1024 x 768 cet équipement n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de classe A. L'utilisation de cet équipement dans une zone résidentielle est susceptible de causer des interférences, auquel cas l'utilisateur devra, à ses frais, prendre les mesures correctives nécessaires.

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# Introduction

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The VRC16 is a 16v/17" high resolution color graphics display which is compatible with VGA, Super VGA, and 8514/A\* format standards.

It also offers the following additional features:

- 17 inch, full square, analog color CRT display
- Programmable MicroController Memory - allows the user to adjust and store display settings for use with a variety of graphics adapter formats; up to 1280 x 1024 @ 66Hz (non-interlaced)
- Sync on green, separate composite sync, or separate horizontal and vertical sync capabilities
- Anti-glare screen
- Integral tilt and swivel base

**\*NOTE:** Although this monitor will accept and run with interlaced timing rates, interlaced modes are discouraged due to objectionable image flicker.

# Precautions

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## On Safety

- This monitor contains a universal power supply that will automatically sense and operate on any voltage between 88 - 132 or 180 - 264. Therefore, no manual adjustment is necessary when changing between power systems.
- Should any liquid or solid object fall into the cabinet, unplug the unit and have it checked by qualified service personnel before operating it any further.
- To disconnect the AC power cord, pull it out by the plug. Never pull the cord itself.
- The CRT face plate builds up electrostatic charge during normal operation. If you are moving your monitor, leave it powered off for at least 3 minutes before unplugging the AC line cord.

## On Installation

- Allow adequate air circulation to prevent internal heat build - up. Do not place the unit on surfaces (rugs, blankets, etc.) or near materials (curtains, draperies) that may block the ventilation holes.
- Do not install the unit in a location near heat sources such as radiators or air ducts, or in a place subject to direct sunlight, excessive dust, mechanical vibration or shock.

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- Keep the monitor isolated from any electromagnetic device such as other display monitors, audio speakers, fans, etc., by at least 3 feet (1 meter) apart. They may cause flicker and/or color impurity.
  - If the color purity is affected by such devices, turn off the power for at least three seconds, then turn it on again, so that the degauss circuit activates. Make sure that the monitor is powered on for more than seven minutes before the next degaussing cycle. Call Digital Customer Services, if the color purity defect is still visible.

### **On Cleaning**

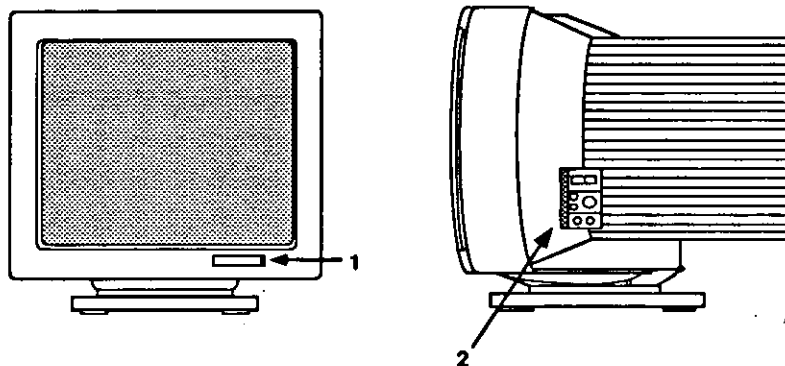
- To keep the unit looking brand new, periodically clean it with a soft cloth. Stubborn stains may be removed with a cloth lightly dampened with a mild detergent solution. Never use strong solvents such as thinner or benzine, or abrasive cleansers since these will damage the cabinet. As a safety precaution, unplug the unit before cleaning it.

### **On Repacking**

- Do not throw away the carton and packing materials. They make an ideal container in which to transport the unit. When shipping to another location, repack it as illustrated on the carton.

# Operation

## Control Locations



**1. Power Indicator**

Lights when AC power to monitor is ON.

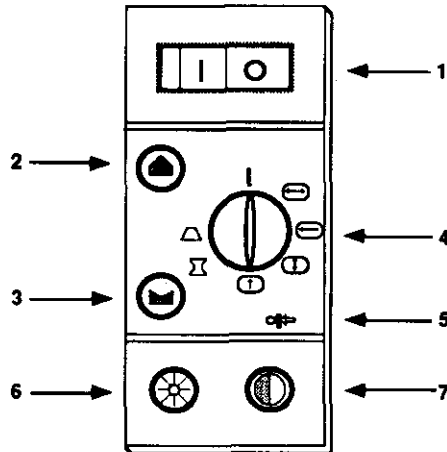
**2. User Interface  
Control Panel**

See expanded view, page 7, for details.



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## User Interface Control Panel



- |                                      |   |
|--------------------------------------|---|
| <b>1. Power Switch</b>               | Turns AC power to the monitor ON ("I"), and OFF ("O").  |
| <b>2.,3. Calibration Pushbuttons</b> | Used in conjunction with the Icon Selector to adjust display settings. See "User Interface System" for further details.   |
| <b>4. Icon Selector</b>              | Selects a display setting for readjustment.   |
| <b>5. Recall Button</b>              | Recalls factory installed display settings (if any) for the current mode.   |
| <b>6. Brightness Knob</b>            | Adjusts the background brightness of the display. Push knob to pop up, push again to lock.                                |
| <b>7. Contrast Knob</b>              | Adjusts the contrast level between the background and foreground of the display. Push knob to pop up, push again to lock. |

# Installation

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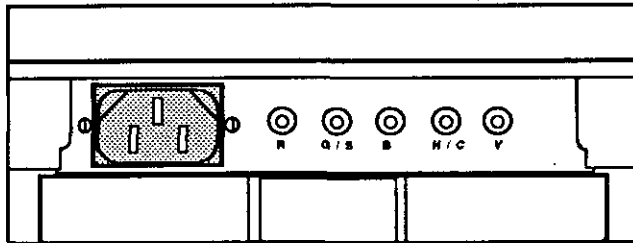
## Preparation

Ensure that you have the following items prior to beginning installation:

- Power Cord for Monitor
- Shielded Cable for Connection to the System
- Monitor

**Important:** Ensure that the monitor and computer system are OFF before beginning installation.

## Signal Connection



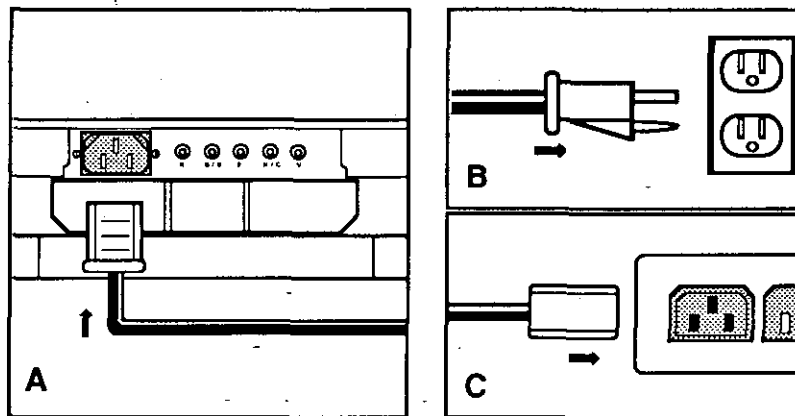
The VRC16 has sync on green, separate composite sync, and separate horizontal and vertical sync capabilities. Determine the sync requirements of your video display controller and connect the appropriate cables as detailed on the following chart.

Refer to your system or graphics controller card installation or user manual for additional information.

### BNC Connection Guide

BNC	Separate Horiz. and Vert. Sync	Comp. Sync on Green	Separate Comp. Sync
	applicationDEC	Digital Workstation	
R	Red	Red	Red
G / S	Green	Green(Sync)	Green
B	Blue	Blue	Blue
H / C	Horizontal	Do Not Connect	Vert. / Horiz.
V	Vertical	Do Not Connect	Do Not Connect

### Power Connection



- First, connect the power cord, supplied with the system, to the monitor (A).
- Next, plug the cord into a properly grounded electrical outlet (B), or workstation convenience outlet (C).
- Turn on the computer system.
- Turn the monitor on by pressing the power switch to the "I" position. The Power Indicator LED will light. Allow approximately 30 seconds for an image to appear.

# User Interface System

## Pre-defined Modes with Factory Installed Display Settings

<b>Mode</b>	<b>Description</b>	<b>Resolution</b>	<b>Refresh</b>
1	VGA	640 x 480 NI*	59.94 Hz
2	VGA Compatible	640 x 350 NI	70.09 Hz
3	VGA Compatible	640 x 400 NI	70.09 Hz
4	Ergonomic VGA	640 x 480 NI	72.15 Hz
5	8514/A Standard	1024 x 768 I**	86.64 Hz
6	Super VGA	800 x 600 NI	56.16 Hz
7	Ergonomic 1K	1024 x 768 NI	70.07 Hz
8	1K VGA	1024 x 768 NI	59.708Hz
9	Ergonomic Super VGA	800 x 600 NI	72.11 Hz
10	Digital Workstation	1280 x 1024 NI	66.51 Hz
11	Digital Workstation	1024 x 768 NI	72.0 Hz
12	User Defined		
13	User Defined		
14	User Defined		

\* Non Interlaced

\*\* Interlaced

If your input signal is not one of these Pre-defined modes, you can install a User Defined mode by following the procedure on page 13.

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## Monitor Memory and the Automatic Overwrite Feature

### Memory

The VRC16 can retain up to 14 separate display modes. These may be either:

- **Pre-defined** modes which are set by the factory, or
- **User Defined** modes which are input by the operator.

The table on page 10 shows the factory Pre-sets.

### Automatic Overwrite

Automatic overwrite occurs after all 14 modes have been filled. Thereafter, whenever another new mode is defined an older *User Defined* mode will be overwritten on a **first in - first out** basis. *Pre-defined* modes *cannot* be overwritten.

### Recall Button

When operating in a Pre-defined mode this button can be used to recall the factory installed display settings. The Icon Selector Switch must be in a calibrate position for the settings to be recalled. All user installed adjustments to that mode will be replaced. This button has no effect while operating in a User Defined mode.

# Adjustments

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## Calibration Control Buttons

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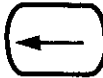
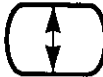





Increment Button



Decrement Button

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ICON	FUNCTION
	<b>Operate</b> -The monitor operates normally while in this position.
	<b>Horizontal Size</b> -Controls overall width of the image. Use increment button to increase; decrement to decrease. Optimal size is approximately 300 mm wide.
	<b>Horizontal Position</b> -Horizontally centers the image. Use increment to move right; decrement to move left.
	<b>Vertical Size</b> -Controls overall height of the image. Use increment to increase; decrement to decrease. Optimal size is approximately 225 mm high.
	<b>Vertical Position</b> -Vertically centers the image. Use increment to move image up; decrement to move down.
	<b>Barrel Geometry</b> -Controls straightness of image edges. Use increment to increase convex flex; decrement to increase concave flex.
	<b>Trapezoid Geometry</b> -Controls parallelism of image edges. Use increment to decrease top width and increase bottom width; decrement to decrease bottom width and increase top width.

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## Installing Display Settings

The VRC16's MicroController analyzes the signal input and selects a display mode from its memory. Using the **User Interface System** the operator can either modify the settings provided, or create a new mode by installing new settings as follows:

1. Select an appropriate *full size* alignment screen and display it on the monitor. Refer to your graphics adapter user's manual for instructions on selecting an alignment screen.
2. Activate the calibration mode by rotating the **Icon Selector Switch** clockwise, out of the **Operate** position, and into the first desired calibration position. (See the chart on page 12 for details.)
3. Adjust the image as required by using the **Calibration Control Buttons**. The buttons can be operated in either 1) discrete steps (by pressing once and releasing); or, 2) continuously (by pressing and holding). Continuous adjustment increases the rate of adjustment the longer the button is depressed.
4. Complete the calibration by rotating through the remaining positions and making any further adjustments as needed.
5. To save the adjustments to memory, rotate the switch counterclockwise to return to the **Operate** position. The monitor will now operate with the new settings until further adjustments are made, or until the recall button is pressed.

# Troubleshooting

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**Problem:****Check:**

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•No image on the display and LED is not lit

•AC cord is plugged in  
•Power switch is ON

•No image on the display, but LED is lit

•Icon Selector Switch is in the Operate position  
•Signal cables are connected  
•Sync cables are connected to the correct BNC inputs  
•Brightness and Contrast adjustments  
•Input signal is within range of monitor (See Specifications)

•Image is too big or too small for the display

•Horizontal Size adjustment  
•Vertical Size adjustment

•Image is not centered on the display

•Horizontal Position adjustment  
•Vertical Position adjustment

•Image is distorted

•Barrel Geometry adjustment  
•Trapezoid Geometry adjustment

•Colors are abnormal or impure

•Signal cables are connected to the correct BNC inputs  
•Activate the degauss circuit by switching the monitor off for at least three seconds. Then power back on.

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**NOTE:** If problem persists, contact an authorized dealer for further assistance.



# Appendix A

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## Specifications

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<b>Resolution Modes</b>	640 x 480, 400, 350 800 x 600, 1024 x 768, 1280 x 1024
<b>CRT</b>	
•Size	17 inch Full Square
•Viewable	15.75 inch
•Dot Pitch	0.26 mm
•Phosphor	Medium short
•Transmission	53.5 %
<b>Max. Active Image</b>	
•Horizontal	11.81 inches (300mm)
•Vertical	8.85 inches (225mm)
<b>Sync</b>	
•Horizontal	30-75 KHz
•Vertical	50-90 Hz, 25-45 (I) Hz
<b>AC Input Ratings</b>	88-132, 180-264 VAC Auto select 50 -60 Hz
<b>Environmental</b>	
•Operating	+10 to +40°C / 0 to 90% Rh
•Non-operating	-40 to +65°C / 0 to 90% Rh
<b>Dimensions</b>	Height: 17.0 inches (432 mm) Width: 16.2 inches (411 mm) Depth: 17.1 inches (434 mm)
<b>Weight</b>	49.6 lbs. (22.5 kg)

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