

DOT-X
Displays by Dotronix

***DSV Series
20, 25 & 27 inch
VideoWall Monitor's***



User's Manual

**DOTRONIX, INC.
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Publication No. 01054 Rev B

Dotronix Limited Warranty

Dotronix warrants that for one (1) year from date original purchase, it will, at its option, repair, replace or refund the purchase price of any product which it manufactured that proves defective in material or workmanship in normal use and service.

To obtain service under this Warranty, contact Dotronix Inc. at the address below, within one (1) year of original purchase, to receive a Return Material Authorization (RMA) number. Then ship the product believed to be defective, transportation prepaid, for inspection.

Dotronix shall *not* be responsible for unauthorized returns that do *not* list the RMA number and quantity returned on the outside of the shipping container (i.e. on packing list in plain view).

For products supplied without a frame (Less CRT and Printed Circuit Board Mounting), the buyer must inspect the products within ten (10) days of receipt. After ten (10) days have lapsed, there shall be *no* warranty coverage for broken or damaged parts, or misalignment (i.e. broken torque seals where used). The products will be packed to allow Buyer to test the unit within its packing carrier.

This Warranty applies only to goods manufactured by Dotronix Inc. Various component parts manufactured by others (such as cathode ray tubes, semi-conductors, and fuses) are covered by the separate warranty of their manufacturers. Where Dotronix, Inc. warranty differs, only the warranty of the original component part manufacturer is offered. Of course, the Dotronix warranty does not apply to CRT's that are scratched, broken, burned or have imperfections in any special coatings. It also does not apply to products which have been altered, damaged, abused, or subjected to misuse, or repaired by anyone other than an authorized Dotronix repair person.

These displays require DHHS traceability under sub-part E, Section 1002.40 of the Regulations for the Administration and Enforcement of the Radiation Control for Health and Safety Act of 1968. It is the customer's responsibility to maintain records that satisfy this requirement.

THE TERMS OF THIS WARRANTY CONSTITUTES THE BUYER'S SOLE AND EXCLUSIVE REMEDY AGAINST DOTRONIX. THERE IS NO IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. UNDER NO CIRCUMSTANCE SHALL DOTRONIX BE LIABLE FOR INCIDENTAL AND CONSEQUENTIAL DAMAGES, OR IN ANY AMOUNT BEYOND THE REPLACEMENT COST OF THE ALLEGEDLY DEFECTIVE PART, REGARDLESS OF THE THEORY OF RECOVERY.

All products returned to Dotronix **must** include:

1. A tag or label on each unit with a description of the defect or reason for return, or identify each unit on the packing list by serial number and defect.
2. A packing list attached to the outside of the shipping container showing the Return Material Authorization (RMA) Number and the quantity returned.

Products returned that are *not* identified in accordance with the above procedure will be refused and returned at Buyer's expense. To obtain a Return Material Authorization (RMA) number contact the Service Department at:

DOTRONIX INC.

160 First Street S.E.
New Brighton, MN 55112-7894
Phone 612-633-1742 FAX 612-633-7025

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Specifications are subject to change due to technological progress.

REGULATORY NOTICES

DHHS: This product complies with applicable DHHS Standards under the Radiation Control for Health and Safety Act of 1968.

X-Ray Precaution: This product includes critical electrical parts essential for X-radiation protection. Under *no* circumstances should the operator attempt to disassemble or modify the display.

WARNING: Changes or modifications not expressly approved by the party responsible for compliance with the FCC's rules (The FCC "Grantee") could void the user's authority to operate this equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, following Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with this operation manual, may cause interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his or her own expense.

If necessary, the user should consult an experienced radio/television technician for additional suggestions. The user may find the following booklet prepared by the Federal Communications Commission helpful:

"How to Identify and Resolve Radio-TV Interference Problems"

This booklet is available from the U.S. Government Printing Office, Washington, DC 20402, Stock No. 004-000-00345-4.

It is necessary to use shielded interconnect cable with this monitor to insure compliance with FCC Class A limits for radio frequency emissions.

PRECAUTIONS

This monitor contains circuits and components designed to meet specific performance and safety requirements. No component changes may be made without the written permission of the manufacturer.

To prevent electrical shock, do *not* attempt to disassemble the monitor. There are no user-serviceable parts inside. Servicing, if required, should be performed only by qualified service technicians familiar with the equipment and safety procedures. **Servicing by unauthorized personnel may be *dangerous* and will void the warranty.**

Do not use this monitor beyond its temperature and humidity range. This unit is designed for indoor use. Ambient temperature range must not be above 113°F or below 32°F. Avoid using this monitor when the humidity is either above 95% or less than 5%. Do not block the ventilation slots on the rear side of the monitor. Allow for normal ventilation.

This monitor is equipped with a three prong grounding-type power plug. This plug will only fit a grounding-type power outlet. Do not remove the grounding pin on the power plug. This is a safety feature. If you are unable to insert the plug into the outlet, contact an electrician to replace your power outlet. Do *not* defeat the purpose of the grounding plug.

Position the monitor to avoid direct sunlight on the picture tube. Generally, adjust the monitor for proper lighting and monitor position to minimize undesirable reflections.

INTRODUCTION

Congratulations on your purchase of a new DSV Series VideoWall Monitor. The DSV Series is available in either a 20 inch, 25 or 27 inch version in an industrial metal cabinet.

This manual has been prepared to act as a guide in the operation of your monitor. Please read the following operating instructions carefully before using your monitor so that you are familiar with all of its features and capabilities. All precautions and safety warnings should be read and strictly observed.

UNPACKING THE MONITOR

To unpack your monitor:

1. Untape and open the top flaps of the packing carton. The monitor will be cushioned by foam inserts. The back of the monitor will be facing up.
2. With the top open, carefully roll the monitor carton so the top of the box is positioned down. Remove the monitor by lifting the box up and off the monitor and the inserts. **Caution:** A firm hold on the monitor must be constantly maintained while it is being removed from its packing carton.
3. A detachable power cord is provided with the monitor. Locate and remove the power cord from the carton.
4. Inspect the monitor thoroughly for any damage that might have occurred during shipping.
5. If any damage to the monitor is found, report it immediately to your shipping carrier.

DONOT RETURN DAMAGED MERCHANDISE TO THE MANUFACTURER UNTIL AN APPROPRIATE CLAIM HAS BEEN FILED WITH THE CARRIER AND A RETURN MATERIAL AUTHORIZATION NUMBER (RMA) HAS BEEN RECEIVED FROM THE MANUFACTURER.

GETTING STARTED

1. Your monitor comes equipped with a detachable power cord with a three prong type plug (AC ground). Attach the power cord to the connection provided for it on the monitor. Plug the power cord into a wall receptacle or power strip that will accept this type of plug.
2. Attach an input/output video cable or RGB cable (*not* included) from the BNC video connection and /or RGB input in the rear panel of the monitor to a compatible connector on your video equipment.
3. The ON/OFF switch is located on the rear side of the monitor (see illustration). To turn on the monitor, push the ON/OFF switch to I.

Should further adjustment or alignment be necessary refer to the technical service manual. For service, contact DOTRONIX, INC. customer service.

240 VAC OPTION

The DSV Series is available as an option configured for 240 VAC operation. If you purchased a 240 VAC DSV Monitor these specifications apply:

- Power requirements: **240VAC \pm 10%, 50/60Hz**
- Power consumption: 150W nominal 27" & 25" models
108 W nominal 20" model
- Operating Temperature: 0° C to +45° C
(+32° F to 113° F)
- Storage Temperature: -40° C to +70° C
(-40° F to 158° F)
- Cooling: Convection cooling will be adequate for most installations. Each monitor requires a minimum of 500 BTU's of cooling or an air movement of 10 CFM per monitor. Internal cabinet temperature must not exceed 55°C (131 °F).
- Stackability: Each monitor is enclosed in a heavy duty industrial metal cabinet. Maximum recommended stack size is six units by six units without additional support.

CRT COATINGS

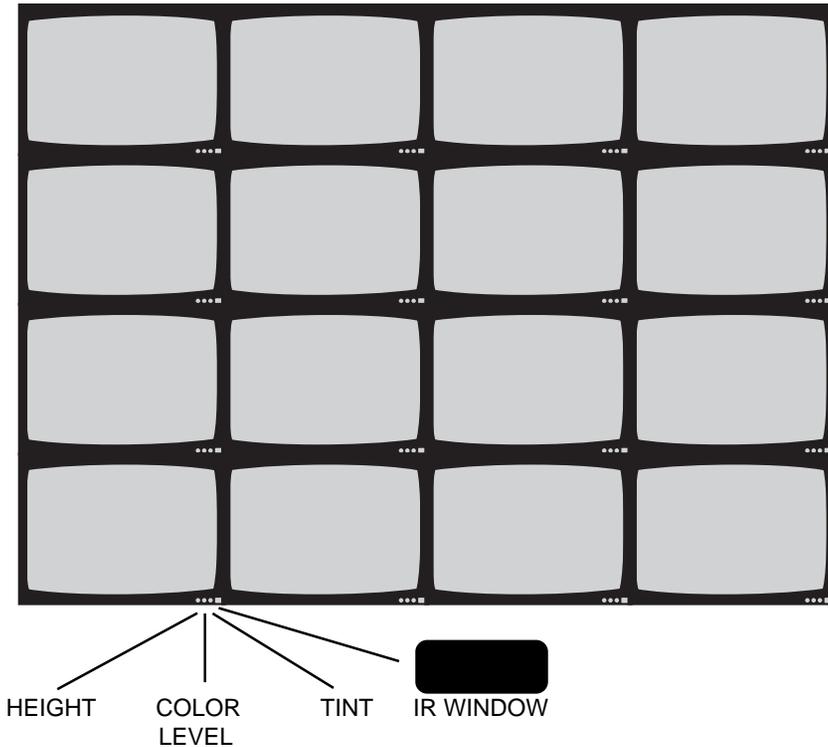
As an option a factory installed anti-glare coating may have been applied to the CRT surface of your monitor. Due to static electricity, the monitor screen will attract dust and under normal use will acquire fingerprints. Recognizing that most people will touch the screen sooner or later causing these fingerprints. We recommend you implement a simple cleaning program. The anti-glare coating on your monitor is very durable and will stand up to routine cleaning. To prevent damage when cleaning, use a non-abrasive household glass cleaner to remove smudges and fingerprints. Do **not** use cleaners, papers, or cloths which contain abrasives that may damage the coating. Highly abrasive materials, scouring pads or acid solutions **should not be used**. Care must be taken when handling and cleaning this surface.

This monitor was inspected prior to shipment and found to meet Dotronix CRT coatings standard. The Dotronix warranty does not apply to CRT's that are scratched, or have imperfections in any special coatings.

HARC TEMPLATE

Address Code Template:

Use this template to make a written note as to which monitor address is assigned to each monitor location. Keep this for reference when making adjustments. (Example A 1, A 2, A16, etc.)



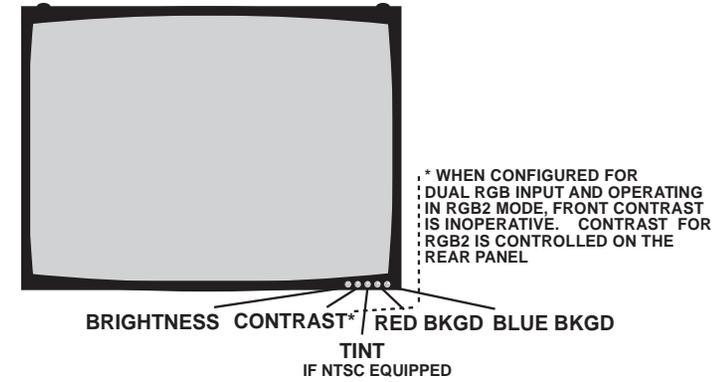
NOTE: When operating in the NTSC video mode the Color Level and Tint are located on the lower right side of bezel. A Height Control is also available on the front bezel should some adjustment be necessary.

Monitor addresses can be reset in the field by qualified service technicians. For more detailed information contact the factory.

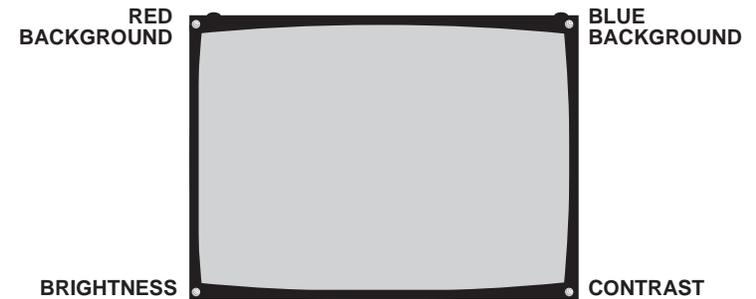
FRONT CONTROLS

Note: DSV20 has no controls in the front bezel

DSV27 controls are in the front lower right bottom of bezel.



DSV25 controls are in the four corners of the bezel

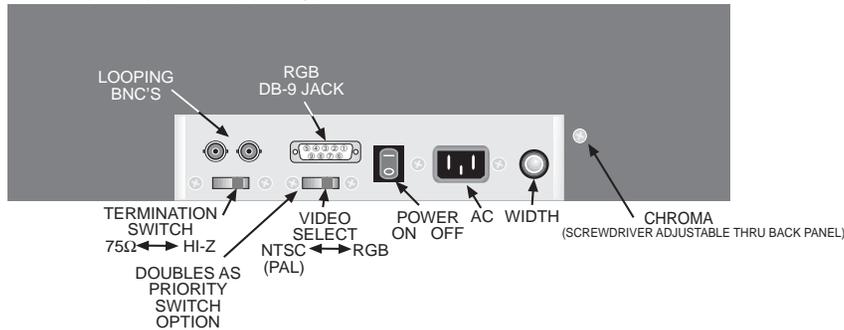


- | | |
|------------|--|
| BRIGHTNESS | Adjusts the brightness level for the desired overall picture or display brightness. |
| CONTRAST | Adjusts the contrast for the desired overall contrast. |
| TINT | If NTSC equipped, this control adjusts for the proper color phase of flesh tones. (Inoperative in RGB mode - Tint not available on PAL versions) |
| RED BKGD | Adjusts the Red Background to achieve proper low level gray scale. |
| BLUE BKGD | Adjusts the Blue Background to achieve proper low level gray scale. |

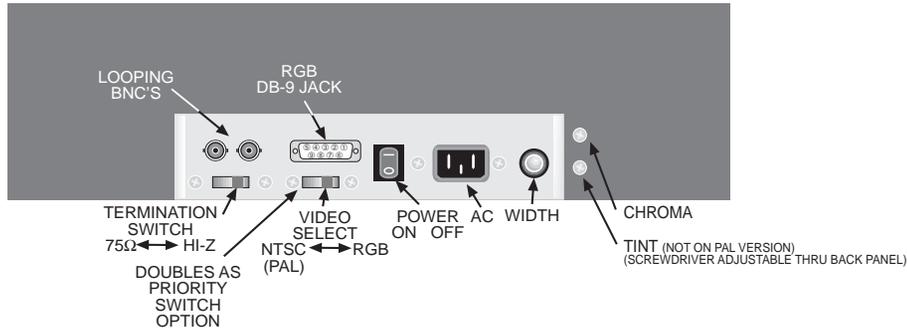
REAR CONTROLS

DSV27, 25

DSV27 REAR PANEL WITH OPTIONS IF SO EQUIPPED



DSV25 REAR PANEL WITH OPTIONS IF SO EQUIPPED



LOOPING BNC'S BNC video for standard NTSC or PAL (if so equipped) composite video inputs. Includes looping capability. Slide the terminate switch to 75Ω when not looping the video.

RGB Sub D 9 Pin Jack analog video for the red, green, blue and composite negative sync (RGSB) inputs. RGSB inputs are self-terminating.

VIDEO SELECT & PRIORITY Selects between NTSC (or PAL) and RGB.

POWER Push I to power unit ON. Push 0 to power unit OFF.

WIDTH Adjusts the raster size horizontally to set the amount of overscan needed.

CHROMA Adjusts the color to the proper color saturation level. (Inoperative in RGB mode)

TINT (25) If NTSC equipped, this control adjusts for the proper color phase of flesh tones. (Inoperative in RGB mode - Tint not available on PAL versions)

HARC OPERATING INSTRUCTIONS

Each monitor is shipped with a factory set address code, and will be factory set in one of three Ranges; A, B or C plus a one or two digit number. You can determine the address by checking the Address Code Label located below the Serial Number on the monitor's rear panel. To address a monitor;

1. Set the **Address Channel Range** Selector to the letter designation indicated on the Address Code Label.
2. Then rotate and set the **Address Channel** Selector to correspond with the last one or two digits indicated on the Address Code Label.
3. Rotate the **Function** Selector to number "1" designation.
4. Then press the **Toggle Control (ID)** up. The addressed monitor will then Flash. The Flashing confirms the fact that you have addressed this particular monitor. Make a note of this address and its position on the template on the next page for future reference.
5. You may then proceed to make the necessary adjustments to the Monitor via the **Selector Functions** listed below.

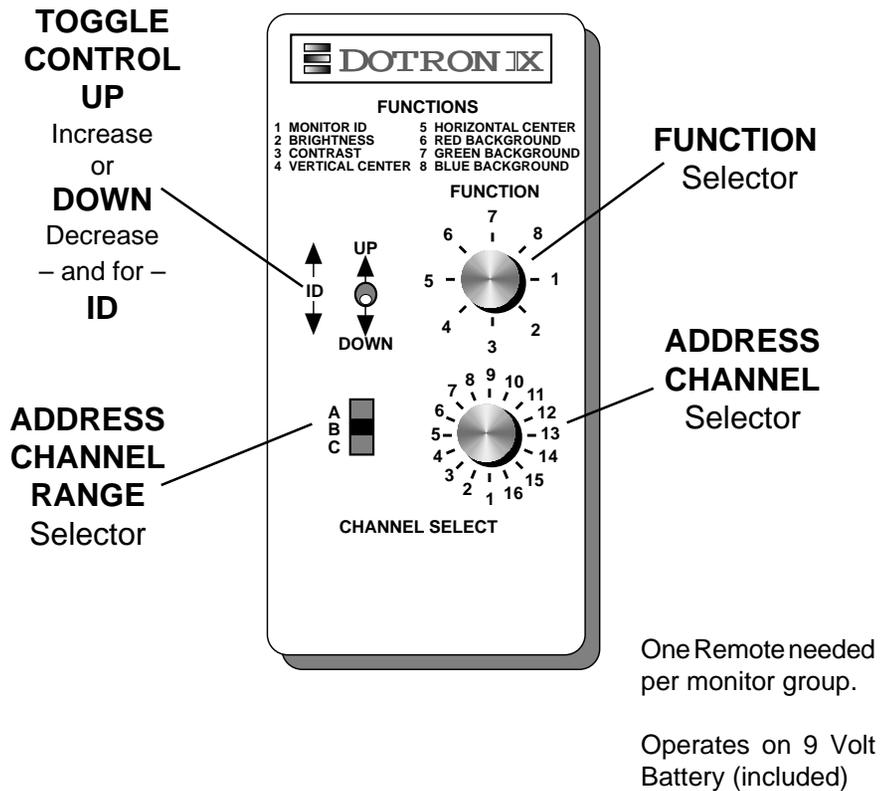
- 1 **Monitor ID** – (See operating instructions above)
- 2 **Brightness** – Adjusts the brightness level for the desired overall picture or display brightness.
- 3 **Contrast**– Adjusts the contrast level for the desired overall contrast.
- 4 **Vertical Center**– Allows for vertical position adjustment of video within the raster.
- 5 **Horizontal Center**– Allows for horizontal position adjustment of video within the raster (Up=Right • Down= Left).
- 6 **Red Background**– Adjusts the Red Background to achieve proper low level gray scale.
- 7 **Green Background**– Adjusts the Green Background to achieve proper low level gray scale.
- 8 **Blue Background**– Adjusts the Blue Background to achieve proper low level gray scale.

HARC OPTION

This new DSV Series VideoWall Monitor is equipped with HARC Technology – Handheld Addressable Remote Control, allowing the operator to remotely align individual monitors independently of others when installed as a group of monitors.

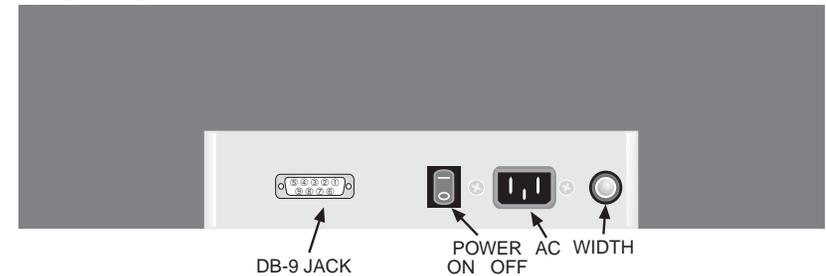
The following has been prepared to act as a guide in the operation of your HARC equipped monitors. Please read the following operating instructions carefully so that you are familiar with all of its features and capabilities before using your HARC remote. All precautions and safety warnings should be read and strictly observed.

Each HARC monitor can be identified by locating the IR Sensor window on the lower right front of the bezel. This indicates that the monitor is equipped with a factory installed receiver board allowing the monitor to be individually addressed and controlled remotely.

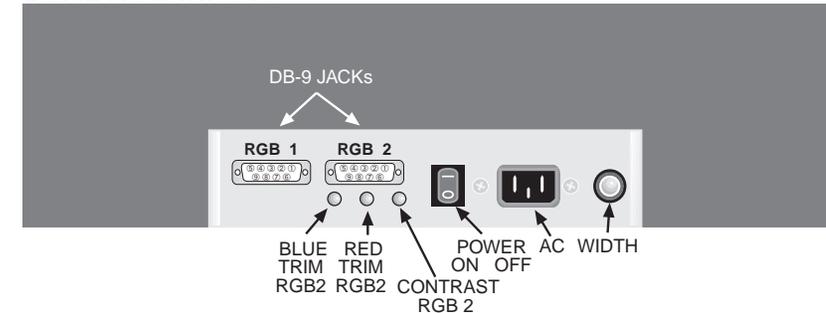


REAR CONTROLS DSV25, 27

DSV25, 27 REAR PANEL RGB ONLY



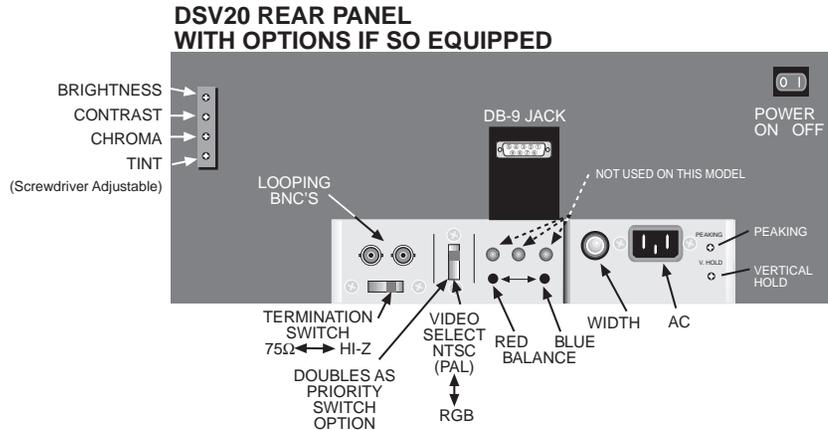
DSV25, 27 REAR PANEL DUAL RGB INPUTS



- RGB PRIORITY** RGB 1 is the Master and RGB 2 is the Slave.
- POWER** Push 1 to power unit ON. Push 0 to power unit OFF.
- WIDTH** Adjusts the raster size horizontally to set the amount of overscan needed.
- BLUE TRIM** Adjusts RGB2 Blue Drive to achieve proper white balance in relation to RGB1.
- RED TRIM** Adjusts RGB2 Red Drive to achieve proper white balance in relation to RGB1.
- CONTRAST** Adjusts the contrast for the desired overall contrast on RGB2 input.

REAR CONTROLS DSV20

- BRIGHTNESS** Adjusts the brightness level for the desired overall picture or display brightness.
- CONTRAST** Adjusts the contrast for the desired overall contrast.
- CHROMA** Adjusts the color to the proper color saturation level. (Inoperative in RGB mode)
- TINT** If NTSC equipped, this control adjusts for the proper color phase of flesh tones. (Inoperative in RGB mode - Tint not available on PAL versions)



- LOOPING BNC'S** BNC video for standard NTSC or PAL (if so equipped) composite video inputs. Includes looping capability. Slide the terminate switch to 75Ω when not looping the video.
- RGB** Sub D 9 Pin Jack analog video for the red, green, blue and composite negative sync (RGBS) inputs. RGBS inputs are self-terminating.
- VIDEO SELECT & PRIORITY** Selects between NTSC (or PAL) and RGB.
- RED/BLUE BALANCE** These two controls are used to balance the white portion of RGB video to the comparable white portion of the NTSC (or PAL) video.
- WIDTH** Adjusts the raster size horizontally to set the amount of overscan needed.
- PEAKING** Adjust for desired picture. Turn clockwise to get a crisper picture, or turn counterclockwise to get a softer picture. (Inoperative in RGB mode)
- VERTICAL HOLD** If the picture rolls adjust to stabilize the picture.
- POWER** Push 1 to power unit ON. Push 0 to power unit OFF.

INTERNAL ADJUSTMENTS

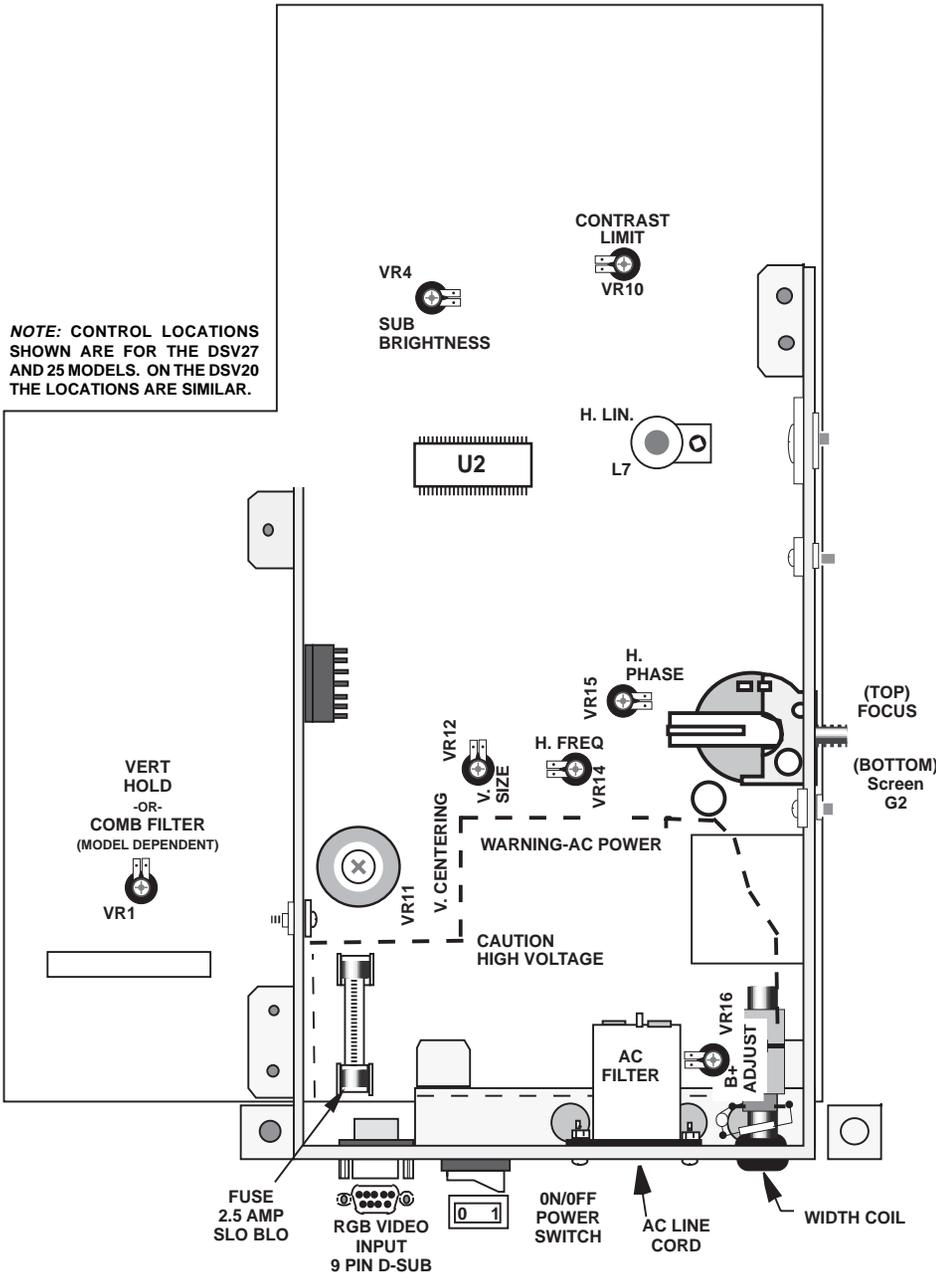
WARNING

POTENTIAL SHOCK HAZARD IS PRESENT WHEN ADJUSTING THE FOLLOWING CONTROLS, WHICH REQUIRE THE REMOVAL OF THE REAR COVER.

- VERTICAL SIZE:** Adjusts the vertical size of the display to fill the CRT Screen.
- VERT. CENTER:** If the active display area is not centered vertically on the CRT screen after the vertical size has been adjusted, this control should be adjusted until the display is centered.
- HORIZ. FREQ:** If the display is tearing horizontally, the horizontal frequency control may need adjustment. Signal quality should be checked before making any adjustments.
- HORIZ. PHASE:** This control is adjusted to center active display area horizontally on the CRT screen.
- CONTRAST LIMIT:** This control should be adjusted with the front panel contrast control at maximum. It is to be set at 30 fL on a white screen. Any attempt to set at a higher level may permit CRT damage.
- SUB BRIGHT:** This is a CRT set-up control. Do *not* adjust if the front panel brightness control will bring up the background raster when turned to maximum. If the raster cannot be seen with the front panel control at maximum, advance this control until the background raster is barely visible.
- The **HORIZONTAL FREQUENCY** and **B+ ADJUST** are factory preset. Adjustment of these controls without proper test equipment may cause monitor operation outside specifications. Please refer to adjustment diagram on opposite page for control locations.
- V HOLD:** Monitors equipped with the NTSC (or PAL) option will have an automatic Vertical Hold circuit that requires no adjustment. Monitors with only the RGB input uses VR1 as the Vertical Hold control.

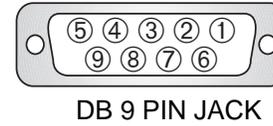
Warning!

The adjustment of these controls should be made only by qualified Service Personnel.



NOTE: CONTROL LOCATIONS SHOWN ARE FOR THE DSV27 AND 25 MODELS. ON THE DSV20 THE LOCATIONS ARE SIMILAR.

- Horizontal Scan Rate: 15.75 kHz ± 500 Hz
- Vertical Sweep Rate: 60 Hz ± 5%
- Video Bandwidth: 10 MHz (-3db)
- CRT Sizes: 20-inch, • 25-inch, • 27-inch
- Resolution: 500 + lines
- RGB Analog input DB 9 Pin Jack with composite negative sync.

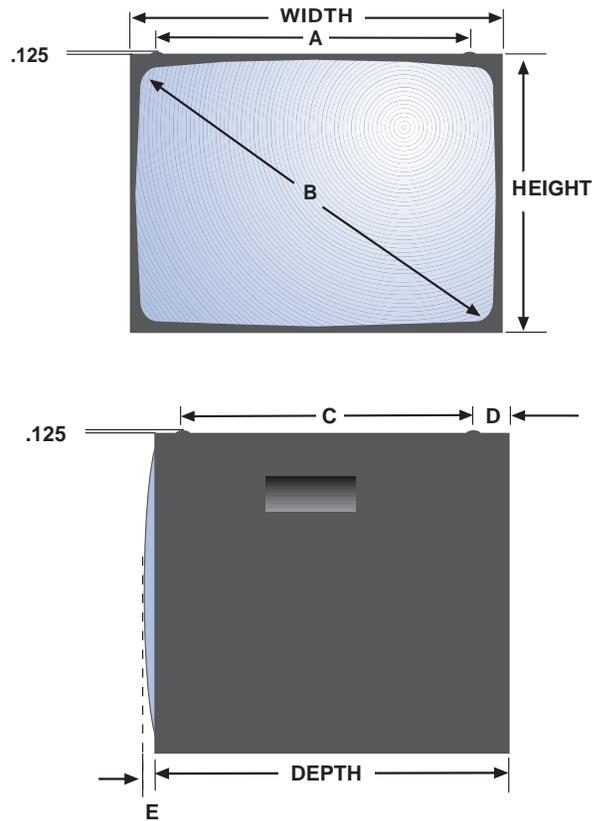


Pin Function

- 1 Red Input (.7 Vp-p)
- 2 Green Input (.7 Vp-p)
- 3 Blue Input (.7 Vp-p)
- 4 GND
- 5 GND
- 6 Comp. Neg. Sync. (0.5 to 4.0 Vp-p)
- 7 N/C
- 8 N/C
- 9 N/C

- Front Controls 27, 25: Brightness
(Accessed from the rear on the DSV20) Contrast
Tint (on 27" NTSC version)
Red Background
Blue Background
- Rear Controls: Horizontal Width, Chroma (on NTSC & PAL versions), Tint (on 25" - NTSC versions only), Switchable 75Ω termination (NTSC or PAL versions), Video Select & Priority if option is installed.
Power ON - OFF
- Power requirements: 120 VAC ± 10%, 60 Hz
- Power consumption: 150 W nominal 27" & 25" models
108 W nominal 20" model
- Operating Temperature: 0°C to +45°C
(+32°F to +113°F)
- Storage Temperature: -40°C to +70°C
(-40°F to +158°F)
- Cooling: Convection cooling will be adequate for most installations. Each monitor requires a minimum of 500 BTU's of cooling or an air movement of 10 CFM per monitor. Internal cabinet temperature **must not** exceed 55°C (131°F).
- Stackability: Maximum recommended size is six units by six units without additional support.
- Agency Approvals: UL, CSA, FCC Class A

MECHANICAL DIMENSIONS



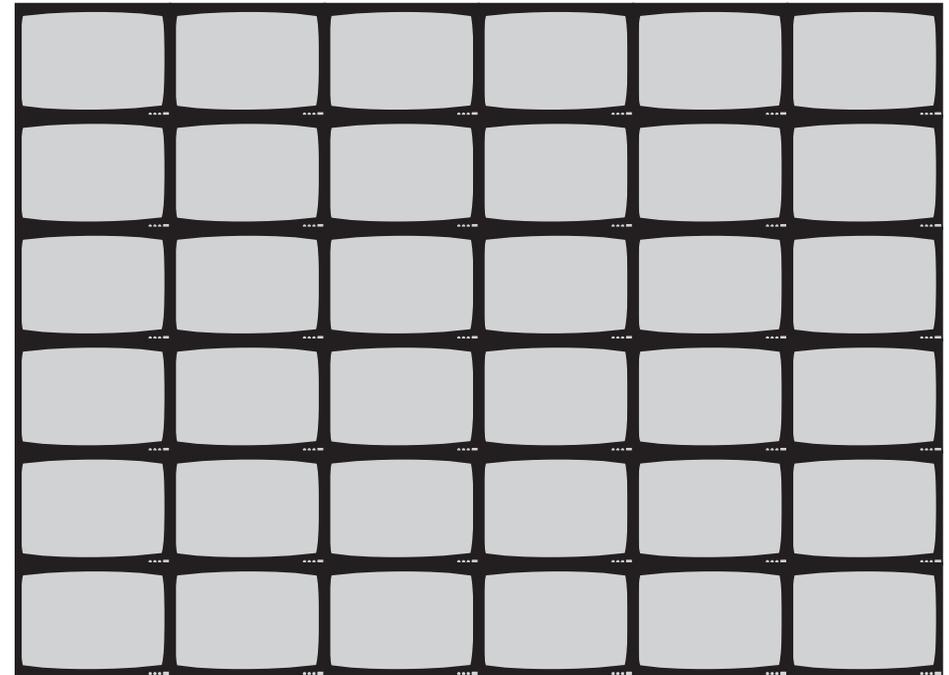
MECHANICAL DIMENSIONS unit = inch (mm)

	DSV20	DSV25	DSV27
Height	15.0"(381)	17.69"(449)	19.12"(486)
Width	18.31" (465)	23.00"(584)	24.12"(613)
Depth	17.125" (435)	17.86"(454)	18.4"(467)
A	14.94" (379)	18.75"(476)	22.0"(559)
B	19.0" (483)	24.65"(626)	27.0"(686)
C	12.75"(324)	12.75"(324)	12"(305)
D	1.62"(41)	2.28"(58)	3.44"(87)
E	1.62"(41)	2.14"(54)	1.56"(40)
Weight	66 lbs (30 kg)	87 lbs (39.5 kg)	105 lbs (47.6 kg)
Shipping	72 lbs (32.7 kg)	93 lbs (42 kg)	115 lbs (52 kg)

WALL INSTALLATIONS

Cooling: Convection cooling will be adequate for most installations. Each monitor requires a minimum of 500 BTU's of cooling or an air movement of 10 CFM per monitor. Internal cabinet temperature must not exceed 55°C (131 °F).

Stackability: Each monitor is enclosed in a heavy duty industrial metal cabinet. Maximum recommended stack size is six units by six units without additional support.



MOUNTING PLATE/ TIE BRACKET

Order Part Number
13027526-007

