



VividImage® T

**LCD Surgical Grade Monitor
High Definition Wide Screen**

OPERATION MANUAL

RLM26HDTNPWR VividImage® T 26" Surgical Monitor

RLM26HDT VividImage® T 26" Surgical Monitor with Power Supply

RLMA26MICT Optional Microphone



RLM26HDT



Notice for Users

IMPORTANT:

To aid in reporting in the case of loss or theft, or for service maintenance purposes, please record the monitor's part number and serial number in the space provided. The numbers are located on the back of the monitor.

Part #:

Serial #:

FCC Statement

WARNING – FCC Regulations state that any unauthorized changes or modifications to this equipment not expressly approved by the manufacturer 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, pursuant to 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 the instruction manual, may cause harmful 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 own expense.

For part number RLM26HDT, use only the included power supply, model WSX624M, manufactured by Jerome Industries, to insure compliance with FCC regulations.

Declaration of Conformity

VividImage® T Medical Grade Monitor RLM26HDT, RLM26HDTNPWR:

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.

This device has been evaluated to the UL 60601-1 standard:

Equipment evaluated to this standard is not suitable for use in the presence of a flammable anesthetic mixture with air or with oxygen or nitrous oxide (unless additional tests have been passed). Therefore this device is not suitable for use in the presence of a flammable anesthetic mixture with air or with oxygen or nitrous oxide.

Function, Intended Application and Mode of Operation:

The VividImage® T Series of monitors are intended to be used in the displaying and viewing of video and graphics for review and analysis by trained medical practitioners. The mode of operation for this device is continuous operation.

**These devices are classified as Class 1 Equipment:
RLM26HDT, RLM26HDTNPWR**

Accessory Equipment:

Accessory equipment connected to the analog and digital interfaces must be certified to the respective IEC standards (i.e. IEC 950 for data processing equipment and IEC 60601-1 for medical equipment). Furthermore all configurations shall comply with the system standard IEC 60601-1-1. Any equipment connected to the signal input part or signal output part configures a medical system. Therefore this equipment, and new configuration, must comply with the requirements of the system standard IEC 60601-1-1.

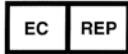
For a complete list of current certifications, please refer to the Specifications page of this manual.



Recognized under the Component Recognition Program of Underwriters Laboratories Inc.



The CE marking certifies that this product has met European Union consumer safety, health or environmental requirements.



The European Authorized Representative (AR) for this product on behalf of the manufacturer is:

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Tips and Safety Precautions

- Image persistence on LCD monitors is caused by the continuous display of static graphics on the screen for extended periods of time. Do not display a static image for more than eight (8) hours. An afterimage may remain.
- **To prevent image persistence, power off the monitor when not in use, especially at the end of the day.**
- It may be difficult to see the image if the brightness is adjusted to the minimum setting.
- The quality of the video signal may influence the quality of the displayed image.
- Do not open the monitor casing.



Monitor and Accessory Checklist

Part Numbers RLM26HDT, RLM26HDTNPWR

- Included in the carton are the following items:
 - 1 VividImage® T HD Monitor
 - 1 Cable Cover
(attached to the back of the monitor)
 - 1 Power Supply* (RLM26HDT only)
 - 1 Power Cord (RLM26HDT only)
 - 8 Mounting Screws
(screwed into the back of the monitor)
 - 1 Quick Start Guide

*Use only the Jerome Industries power supply, model WSX624M included in the carton.

Notes:

- Retain the carton and packing material for transporting the monitor.

Mounting

- Mounting the monitor to a boom arm requires two people.
- Always follow mounting instructions to avoid physical injury and/or damage to the monitor.

Location

- Use the monitor in a suitable environment. See "Operating Temperature" and "Storage Temperature" on the Specifications page of this manual.
 - Even though the monitor is classified as surgical / medical grade, use caution around liquids as you would with any electrical appliance.
 - Do not insert objects into the monitor.
 - Do not place the monitor on unstable surfaces.
 - In all cases, refer to the specifications in this manual to ensure proper monitor performance. Use of the monitor outside of operating specifications will void the monitor warranty and may cause permanent damage to the monitor.
- Note: This product contains fluorescent lamps; please follow local ordinances or regulations for disposal.

Power Cord

- Do not damage the power cord. Damage to the cord may result in fire or electric shock.
- Do not add extension cords.
- Use only the power cord and power supply included with the monitor.
- Insert the power plug directly into the AC outlet.
- Do not remove or insert the power plug with wet hands. Doing so could result in electric shock.



Manual Scope

- This manual is written for use with RLM26HDT and RLM26HDTNPWR. When describing a different specification / function between the monitors, the part number, is given. When the part number is not given, the description is true for all monitors. For product appearance, illustrations of part number RLM26HDT are used in this manual.



Connecting the Monitor and Turning On/Off

Step 1: Unpacking the carton

Unpack the monitor and other items from the carton. If any of the items are missing (see checklist on previous page), please call Customer Support at (877) 887-1788.

Step 2: Mounting the monitor

The back of the monitor (see Figure 1) has a hole pattern that complies to the VESA (Video Electronics Standards Association) mounting standard. The monitor is shipped with eight screws that are screwed into the back of the monitor. Four M4 x 12 mm screws and four M4 x 16 mm screws are included. Remove all eight screws and use one set of four screws to attach the monitor to the mount, either in the inside square hole pattern, 75mm, or the outside square hole pattern, 100mm (see Figure 1A). Use the longer four screws for mounts with thicker mounting plates. The mount is sold separately.

Note to users attaching the VividImage® T Monitor to an Operating Room Equipment Management System and/or Equipment Boom:

If the VividImage® T Monitor is to be mounted on a boom and/or Equipment Management System, the boom vendor should have wired the appropriate cables through the boom arm.

Step 3: Attaching the monitor to a boom arm and connecting video and power sources

1. Attaching the VividImage® T monitor to a boom arm requires two (2) people. One person supports the monitor and aligns the mounting holes while a second person physically attaches the monitor to the VESA mount attached to the boom arm.
2. After the monitor is mounted, remove the cable cover and connect the customer supplied video cable(s) and power cord to the appropriate port on the back of the monitor. The ports on the monitor are clearly labeled (see Figure 2). Ensure fiber connections are made prior to powering up the monitor.
3. The cable cover should be re-attached using the included screws.
4. Once these connections are made and the monitor is connected to a power source, the monitor will power on automatically.

Note: If changing fiber connections, ensure the monitor is turned off before making new connections to ensure the image does not become distorted.

5. Use the blue buttons on the keypad to select an input.
6. When not in use, use the Power button on the front to turn the monitor off.

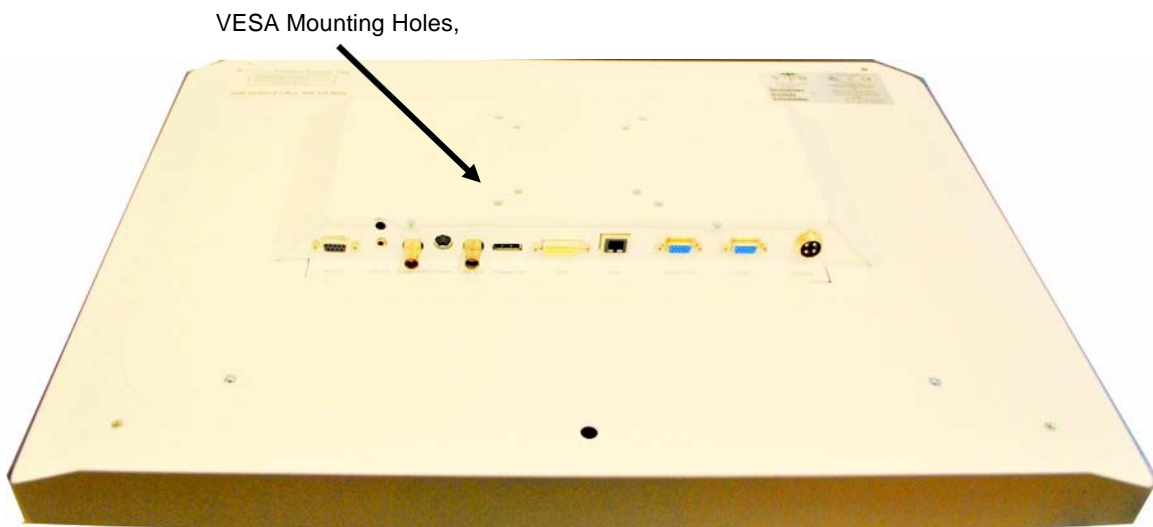


Figure 1: VividImage® T Rear view, shown without cable cover



Figure 2 VividImage® T close-up of ports



User Interface

Keypad Buttons

The user interface is located on the front, lower right of the monitor. A drawing of the keypad is shown below in Figure 3.



Figure 3 Keypad

Power Control

The power is turned on and off by pressing the black **POWER** button. The blue indicator on the button will be illuminated when the status is "On". The monitor turns on automatically when connected to a power source.

Video Source

The video source is selected by pressing one of the eight blue buttons that corresponds to the connected video source. A blue indicator will be illuminated on the button that is selected.

Keypad Lock

When keypad lock is active, all buttons on the interface are disabled. In this state, the user may only turn the monitor on or off with the power button. A yellow indicator will be illuminated on the power button when the keypad lock is active ("Locked"). Locking and unlocking the keypad is performed with Hot Keys, as described below.

Onscreen Display Menu

Pressing the **MENU / EXIT** button on the user interface displays the first in a series of menus. To move to the desired submenus that are available for each menu function, press either the **▲**, **▼**, **▶** or **◀** button. If in a submenu, **MENU / EXIT** will return the previous menu. To exit the Onscreen Display menu select **MENU / EXIT**.

The monitor's firmware version and release date is displayed at the bottom of each Onscreen Display menu.

Hot Keys / Direct Menu Access

Some menus can be accessed directly by pressing buttons on the interface. The following is a list of the hot keys (single or combinations of interface buttons) and the menus that appear when pressed:

Backlight Brightness Increase

Press **▶** to increase the backlight brightness level.

Backlight Brightness Decrease

Press **◀** to decrease the backlight brightness level.

Contrast Increase

Press **▲** to increase the contrast level.

Contrast Decrease

Press **▼** to decrease the contrast level.

Note: To make adjustments to Backlight Brightness, Contrast and other menu functions relating to the look and position of the image, the source must be connected, powered on and selected on the keypad.

Lock Keypad

Press ◀ + ▶ to lock the keypad.

Unlock Keypad

Press ▲ + ▼ simultaneously to unlock the keypad.

Keypad Lock can be set to On (active) or OFF (inactive). The On position locks all the buttons on the keypad. When Keypad Lock is activated, the message "Keypad Locked" is displayed. When keypad lock is active the yellow LED on the black Power button will be illuminated. When Keypad Lock is inactive, the message "Keypad Unlocked" appears on the screen.

Preset Menu

Press **ENTER** for two seconds to open the Preset menu.

PIP (Picture-in-Picture) On/Off

Press ▼ + **ENTER** to turn PIP either On or Off.

Source Selection (Main source)

Press ▲ + **ENTER** to select the main source. There is an option to show All sources or Active sources. If Active sources is selected, the Active sources (sources that are connected and powered on) are highlighted.

Source Selection (PIP source)

To select a PIP source, the PIP selection on the Layout menu must be set to ON. To select PIP ON, press ▼ + **ENTER**, or open the Onscreen Display menu and navigate to the Layout page). Press ▲ + **ENTER** simultaneously, then press ◀ to select the PIP source. There is an option to show All sources or Active sources. If Active sources is selected, the Active sources (sources that are connected and powered on) are highlighted.

The source selections are as follows, for both Main source and PIP¹ source:

VGA / RGB
Composite²
S-Video
Hi-Line Composite²
DVI
YPbPr
Fiber
3G- SDI
Display Port

¹The currently active Main source cannot be selected as the PIP source. The currently active Main source is therefore excluded from the list of PIP source selections.

²To switch between Hi-Line Composite and Composite, press the Hi-Line Composite button on the keypad twice.

Preset Configurations

To access the Preset Configurations menu, used for selecting User Presets and Fixed Presets and for setting User Presets, hold the **ENTER** button down for two seconds. See p. 18 for more information on User and Fixed Presets.



Navigating Onscreen Display

Navigation for Onscreen Display

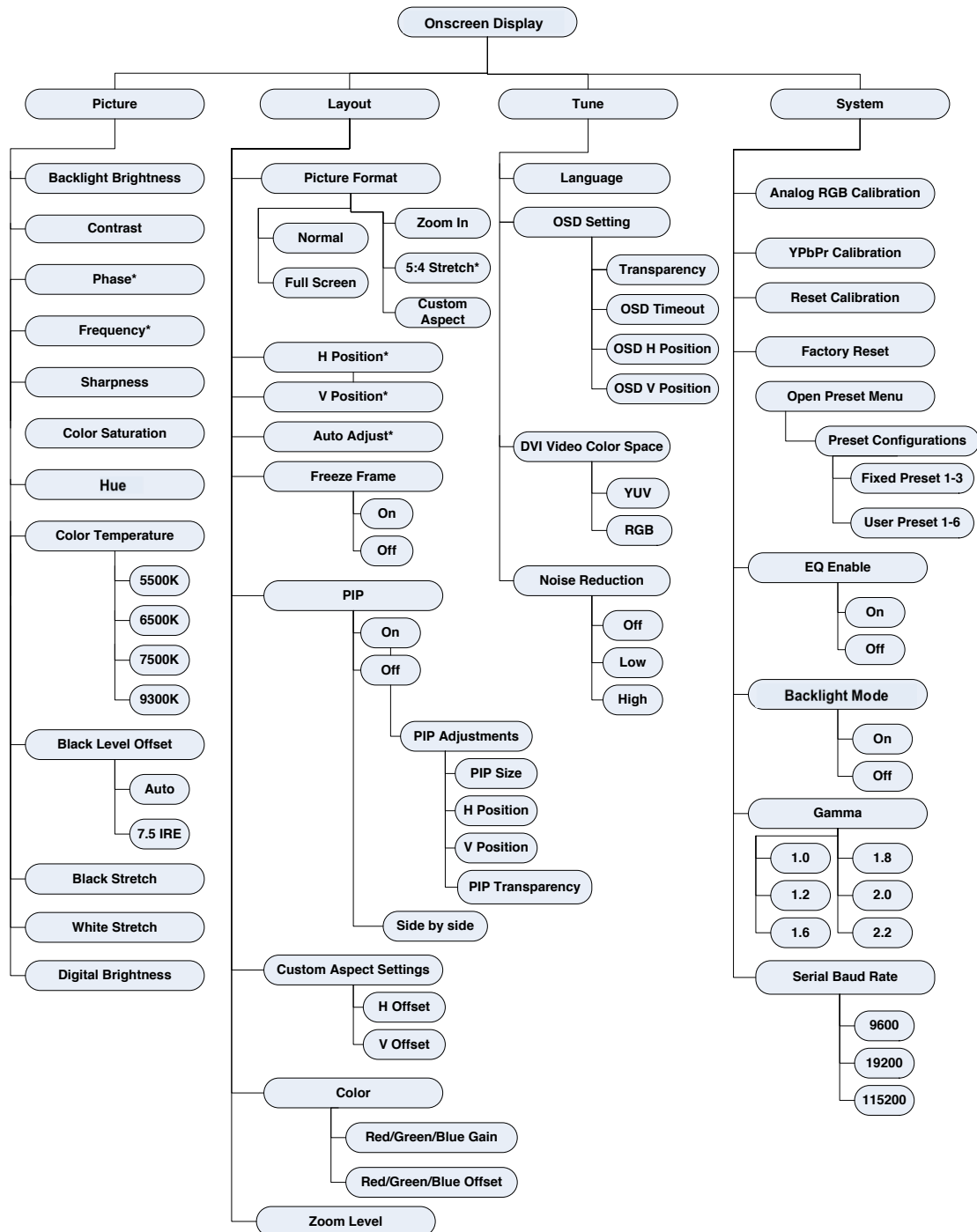


Figure 4 Onscreen Display Menu Navigation Options

* Options indicated with an asterisk are available only with selected signals.

Picture Menu

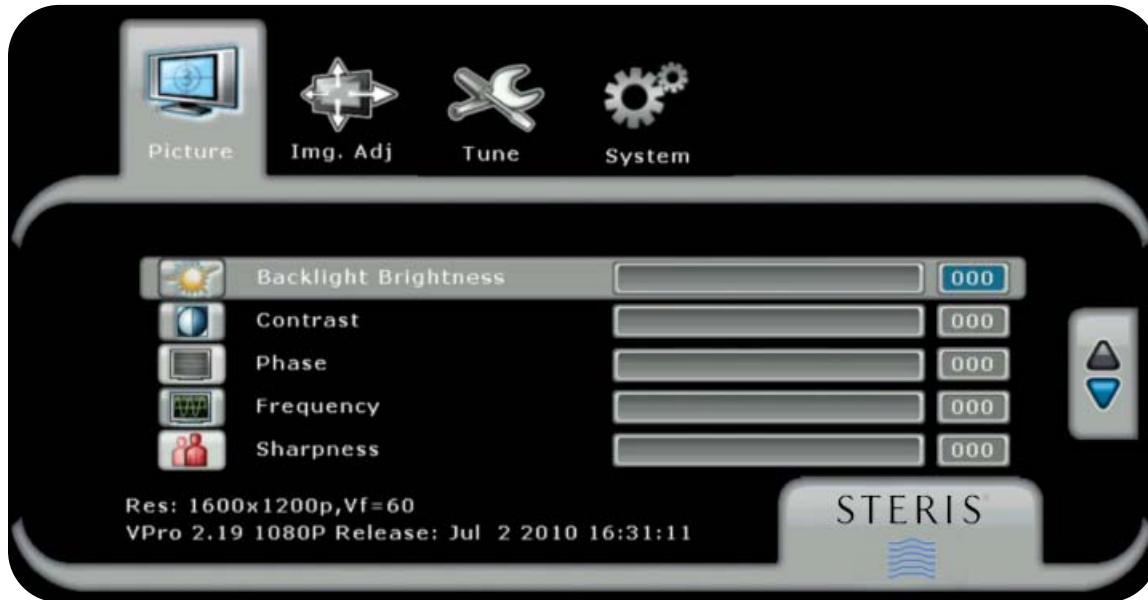


Figure 5 Picture Menu, Brightness – Sharpness Selections

Backlight Brightness - The backlight brightness setting increases or decreases the intensity of the backlight. Backlight brightness can be accessed through the ONSCREEN DISPLAY menus, as shown above, or using the hot keys "►" and "◄". When either of the hotkeys is pressed, the monitor displays the backlight brightness adjustment menu.

Contrast - The contrast setting differentiates between variations of similar shades by adjusting the video gain of the monitor. The contrast adjustment can be made for all inputs individually, so that when the input type changes, the contrast adjustment will change with it. After adjustment, the new contrast value is displayed on the screen until "Menu / Exit" is pressed or the Onscreen Display timeout period expires. Contrast can be accessed through the Onscreen Display menus, as shown above, or with the hot keys "▲" or "▼". When either of the hotkeys is pressed, the monitor displays the contrast adjustment menu.

Phase - Applicable to Analog RGB and VGA signals only. Phase adjusts the internal clock to sample each picture as near as possible to the center. The Phase setting does not have a fixed default value. It will change depending upon different resolutions.

Frequency - Applicable to Analog RGB and VGA signals only. Frequency sets the total number of input pixels per line to correspond with the input source. The frequency default is 100.

Sharpness - The sharpness setting digitally enhances the edges of an image. Sharpness is a low pass filter that cuts off high frequency components not being introduced by image detail.

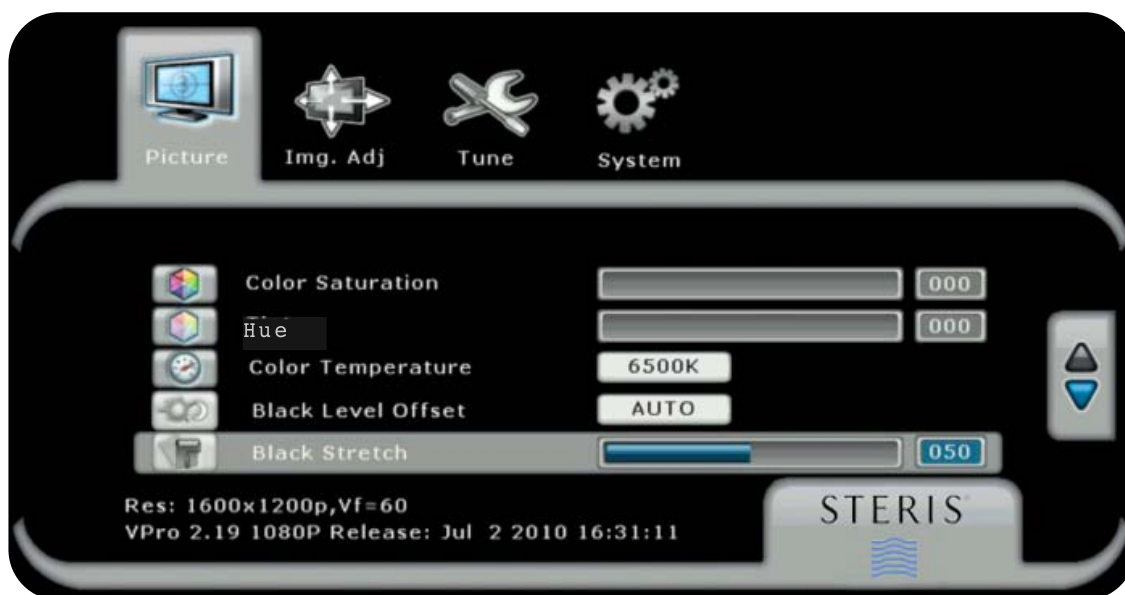


Figure 6 Picture Menu, Color Saturation – Black Stretch Selections

Color Saturation - The color saturation setting will change the emphasis of the color component of the image.

Hue - The hue setting adjusts the “shade” of the colors.

Color Temperature - A pre-configured color temperature can be selected. There are four available: 5500K, 6500K, 7500K and 9300K. The default is 6500K.

Black Level Offset - The monitor automatically detects whether the input device connected requires a black level offset. The black level Offset control provides a manual override of the automatic setting. There are two selections: Auto, 0 IRE, and 7.5 IRE. The default is Auto.

Black Stretch - The black stretch setting enhances dark colors in light images.

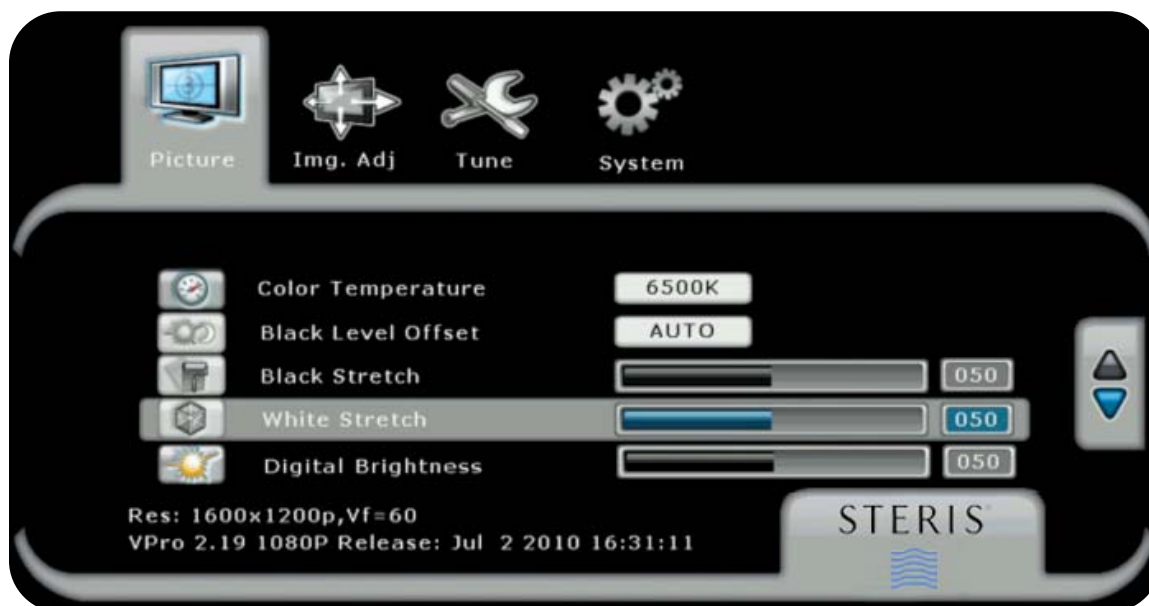


Figure 7 Picture Menu, Tint - White Stretch Selections

White Stretch - The white stretch setting enhances bright colors in dark images.

Digital Brightness - Adjusts the brightness level of each pixel. Adjusting this setting can result in a brighter image than adjusting the backlight brightness.

Layout Menu

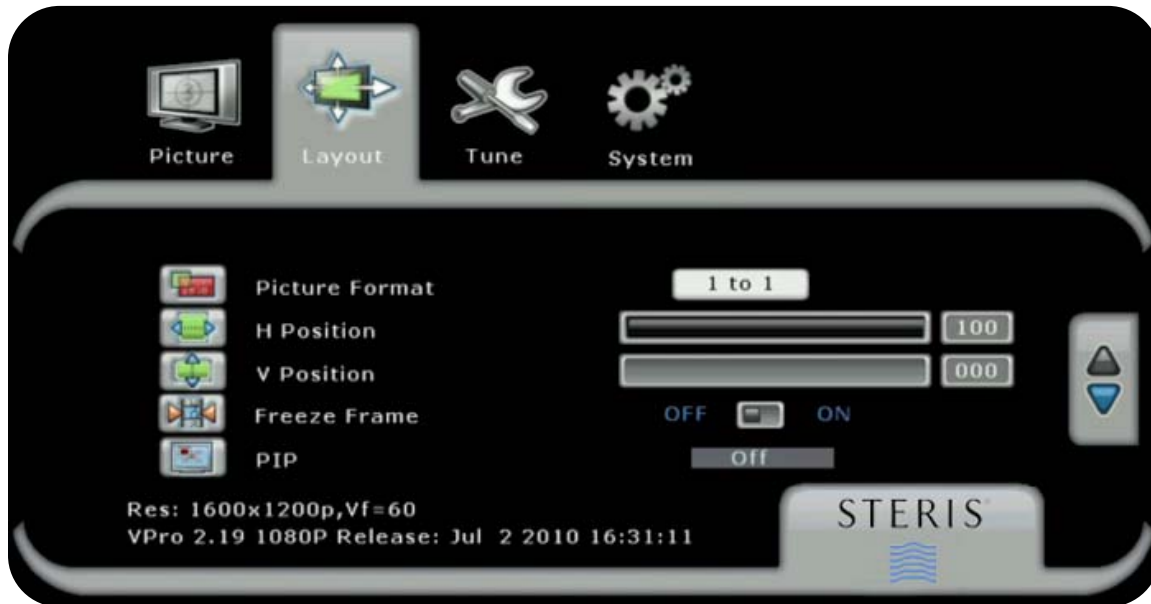


Figure 8 Layout Menu, Picture Format – PIP settings

Picture Format - The picture format function selects the displayed aspect ratio when the signal input is at a variance with the display panel's natural/native aspect ratio. Not all settings give different results under certain conditions. For example, when a 16:9 image is displayed on a 16:9 panel, any of the four setting choices will result in an identical full screen image.

The format options are:

Normal – Preserves the aspect ratio of the incoming image and scales the image to fit the size of the panel. Dependant on the aspect ratio of the panel, the image is either bordered on the right and left sides or the bottom and top of the panel. Non-used areas of the panel are displayed black.

ZOOM IN – Magnifies the image, keeping the focus at the center. Adjust the amount of magnification using the ZOOM IN setting at the bottom of this menu. See *ZOOM IN* on p. 15 for information on using the setting.

Full Screen – Scales the image to the size of the panel without preserving the aspect ratio.

5:4 Stretch – Used with 1080i signals, centers a 5:4 aspect ratio image on the screen and stretches the image to fill the screen without cropping.

Custom Aspect – A user defined aspect ratio will be saved under “Custom Aspect” when horizontal and vertical offsets are changed in the Set Custom Aspect menu. Custom aspect remains saved when inputs are changed. Custom aspect is saved until the monitor is powered off.

Freeze Frame - When freeze frame is set to ON, the image will freeze (remain static) until it is set to Off or until a different input source is selected. Freeze frame can be set to On or Off. The default is Off.

PIP - The PIP (Picture-in-Picture) menu selection enables and controls the PIP function. There are three selections: Off, ON and Side by side.

Off – A PIP window is not displayed.

On – A PIP image from a second channel (see PIP Source Selection below) is displayed in a window within the main image. When PIP is set to ON, the following PIP Adjustments are enabled:

PIPSize - There are eight size selections (1-8) available for the PIP window. The default is four.

H Position - The H position setting adjusts the horizontal (left/right) positioning of the PIP window on the screen.

V Position - The V position setting adjusts the vertical (up/down) positioning of the PIP window on the screen.

PIP Transparency- This function enables the PIP window to be set to varying levels of transparency. The default is 0.

Side by side – Displays the main image and PIP window side by side and scaled to the vertical size of the panel. The unused areas of the panel are displayed in black.

PIP Source Selection- Press “▲” and “Enter” simultaneously, then press “◀” to select the PIP source. PIP has to be ON to select a PIP source (to turn PIP ON choose Layout then PIP in the Onscreen Display menus or use the hot keys “▼” and “Enter”). There is an option to show All sources or Active sources. If Active sources is selected, the Active sources (sources that are connected and powered on) will be highlighted.

Important Note on PIP: Please see PIP Matrix below for the signal types that can be used as the primary and secondary input channel for PIP and Side by side.

		Secondary Signal							
Signal (Connector)		3G-SDI (BNC)	Display Port (Display Port)	DVI (DVI-D)	Fiber-DVI (SC Single Fiber)	VGA/RG BHV/PC RGBS, RGB (HD-15)	YPbPr (HD-15)	S-Video (BNC)	Composite / Hi-Line Composite (BNC)
Primary Signal	3G-SDI (BNC)		X	X	X	X	X	X	X
	Display Port (Display Port)	X		X	X	X	X	X	X
	DVI (DVI-D)	X	X			X	X	X	X
	Fiber-DVI (SC Single Fiber)	X	X			X	X	X	X
	VGA/RGBHV/PC, RGBS, RGB (HD-15)	X	X	X	X				
	YPbPr (HD-15)	X	X	X	X				
	S-Video (BNC)	X	X	X	X				
	Composite / Hi-Line Composite (BNC)	X	X	X	X				

X = signals can be used as primary and secondary channels for PIP.

Table 1: PIP Matrix



Figure 9 Layout Menu, Freeze Frame – Custom Aspect Settings

Custom Aspect Settings - A user defined aspect ratio will be saved under “Custom Aspect” in the Picture Format menu when horizontal and vertical offsets are changed in this “Settings” menu. Custom Aspect remains saved when inputs are changed and until the monitor is powered off. The range for both the Horizontal Offset and Vertical Offset is negative 100 to positive 100 in increments of five. The default is 0.

H Offset - Applicable to RGB and VGA signals only. H Position adjusts the horizontal (left/right) positioning of the image.

V Offset - Applicable to RGB and VGA signals only. V Position adjusts the vertical (up/down) positioning of the image.

Color -

Red, Green & Blue Gain- Increasing the gain of a color multiplies the proportion of that color by a factor. Red, Green and Blue can be adjusted separately. Red Gain, Green Gain and Blue Gain all have a default of 50.

Red, Green & Blue Bias- Increasing the offset of a color increases the proportion of that color in the background of the image. Red, Green and Blue can be adjusted separately. Red Bias, Green Bias and Blue Bias all have a default of 50.

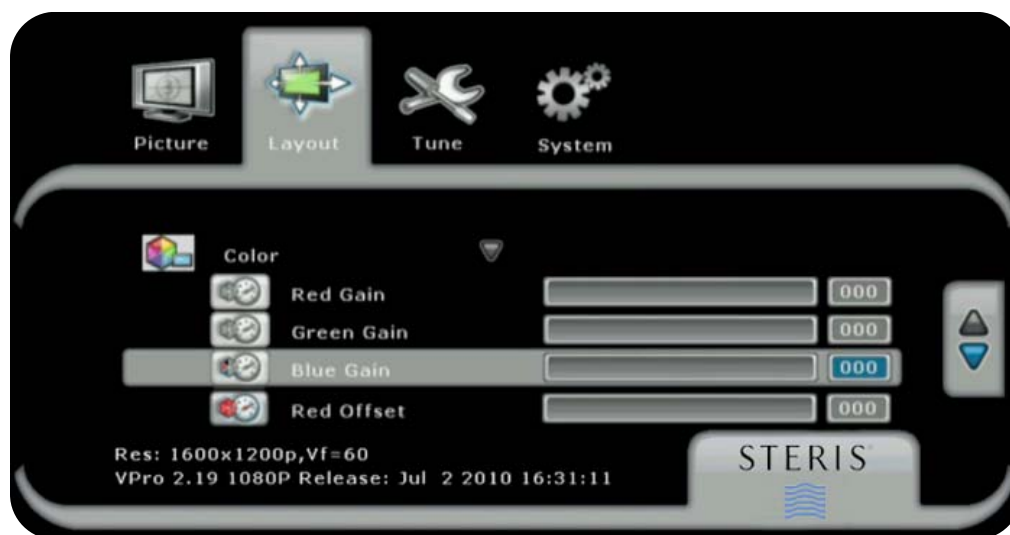


Figure 10 Layout Menu, Color Settings

Zoom Level - Adjust the amount that the image is magnified. Image is magnified from the center. This setting can go up to 45.

Tune Menu



Figure 11 Tune Menu

Language - English (American) is the only selection.



Figure 12 Onscreen Display Settings

Onscreen Display Setting - These settings control the appearance of the Onscreen Display.

Transparency - The transparency setting enables the Onscreen Display to be set to varying levels of transparency. The default is 50.

OSD Time-out - The OSD time-out setting enables the user to control the time that the Onscreen Display menu displays. The Onscreen Display time-out can be set from 1 to 60 seconds. The default is 20 seconds.

OSD H Position - Controls the horizontal (left/right) positioning of the Onscreen Display menu on the screen.

OSD V Position - Controls the vertical (up/down) positioning of the Onscreen Display menu on the screen.

RGB HD Video Color Space - Applicable to RGB signals only. There are two options available for this setting. YUV is used for video timing and RGB is used for VESA/PC timing. RGB is the default.

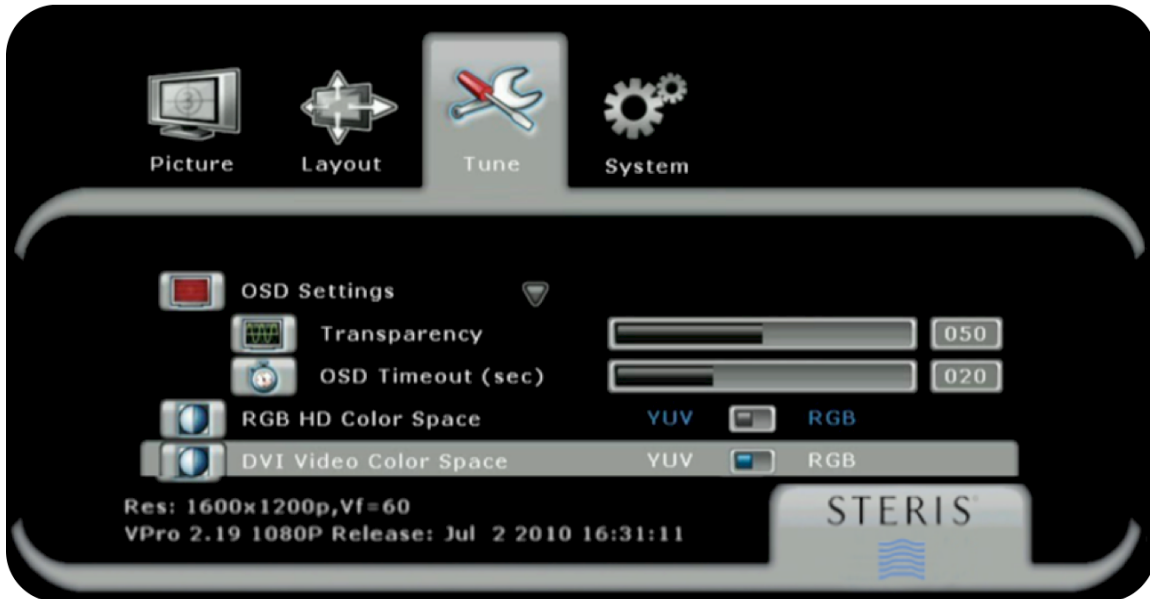


Figure 13 Tune Menu, DVI Video Color Space Setting

DVI Video Color Space - Applicable to DVI signals only. There are two options available for this setting. YUV is used for video timing and RGB is used for VESA/PC timing. RGB is the default.

Noise Reduction - The noise reduction function utilizes a per-pixel motion adaptive algorithm to remove noise (distortion) from the image while leaving the image's content, motion and detail intact. It also blocks artifacts. Noise Reduction can be set to Off, Low or High. The default is Off.

System Menu

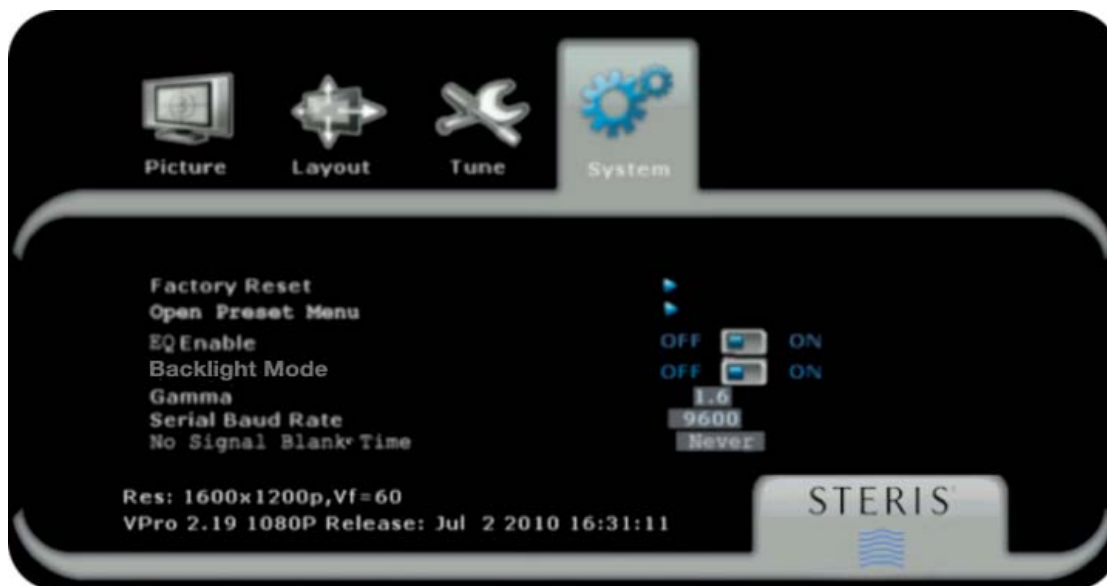


Figure 14 System Menu

Analog RGB Calibration - Applicable to RGB signals only. Calibrates the color response of the RGB input to match the standard color space. This function is for service personnel only.

YPbPr Calibration - Applicable to YPbPr signals only. Calibrates the color response of the YPbPr input to match the standard color space. This function is for service personnel only.

Reset Calibration - Applicable to RGB and YPbPr signals only. Sets the calibration of Analog RGB or YPbPr signals to the factory defaults. When Reset Calibration is selected, the message "Press Enter To Confirm" will appear. Press Enter to confirm calibration reset.

Factory Reset - Resets all settings to the factory defaults. When Factory Reset is selected, the message "Press Enter To Confirm" will appear. Press Enter to confirm reset. Factory defaults are listed on page 20.

Open Preset Menu – Opens the preset menu, shown below.

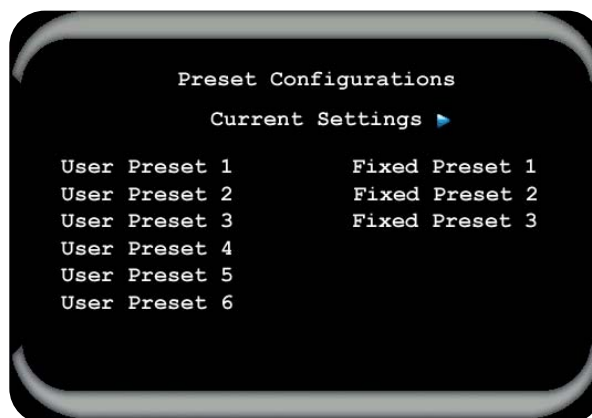


Figure 11: Preset Configurations Menu

The values listed in the table below are preloaded into the user presets. The preloaded values were designed with clinical feedback. The values can be modified to meet the preferences of users at your location.

To adjust the values of a preset:

1. Apply the preset. Follow the instructions on p. 20 entitled "To select a User or Fixed Preset".
2. Adjust Onscreen Display settings according to the image preferences of users at your site.
3. Save the adjusted values. Follow the instructions on p. 20 entitled "To save the current settings as a User Preset."

To restore a preset to its original settings:

1. Apply the preset. Follow the instructions on p. 20 entitled "To select a User or Fixed Preset".
2. Adjust Onscreen Display settings manually to the values below.
3. Save the adjusted values. Follow the instructions on p. 20 entitled "To save the current settings as a User Preset."

	User Preset 1	User Preset 2	User Preset 3	User Preset 4	User Preset 5	User Preset 6
Procedure	Hernia/CA BG	Colonoscopy	Robotic CABG	Anthroscopy	Arthroscopy	Laparoscope
Gamma	2.2a	2.0a	2.0a	2.2a	1.5a	Mon1
Backlight Brightness	100	100	90	77	100	100
Contrast	53	50	50	53	50	50
Sharpness	4	2	5	5	6	5
Color Saturation	50	50	50	50	50	50
Tint	47	53	50	47	53	50
Color Temp	6500	7500	6500	6500	9300	6500
Black Offset	Auto	Auto	Auto	Auto	Auto	Auto
Black Stretch	49	50	52	49	40	50
White Stretch	34	50	50	34	51	50
Digital Brightness	78	47	47	78	50	50
Red Enhance	Off	Off	Off	Off	Off	Off
Red Gain	47	50	43	47	35	50
Green Gain	45	50	50	50	70	50
Blue Gain	50	50	50	50	58	50
Red Offset	50	50	50	50	50	50
Green Offset	50	50	50	45	50	50
Blue Offset	50	50	50	50	50	50

- **To select a User or Fixed Preset:** use the ▲ and ▼ arrow keys to navigate the presets. The monitor previews with the preset values as the selections are made. To select a preset, press **ENTER**. The preset is applied to the monitor and the Preset Configurations menu closes. To keep the monitor settings that were applied prior to opening the Preset menu, navigate back to the Current Settings item at the top of the menu before the menu times out. The original settings are reapplied.
- **To save the current settings as a User Preset:** press **ENTER** twice. The Fixed Presets gray out and are no longer selectable. Use the ▲ and ▼ arrows to select the User Preset to store the current settings, then press **ENTER** to save the setting. The menu closes.

EQ Enable - Applicable to DVI signals only, EQ Enable can be set to On or Off. The default is Off. This option, when ON works as an equalizer to reduce distortion, typically sparkles and vertical lines on the image.

Backlight Mode - Backlight Mode can be set to On or Off. The default is Off. When On, the backlight of the panel is set to maximum brightness and white screen for viewing films as a reference.

Note: *This feature is not intended for use as diagnostic purposes. It is not a substitute for a light box.*

Gamma - A pre-configured gamma curve can be selected. There are fourteen available: 1.0, 1.0a, 1.2, 1.2a, 1.6, 1.6a, 1.8, 1.8a, 2.0, 2.0a, 2.2, and 2.2a. The default is 2.2a.

Serial Baud Rate - The serial baud rate is the rate at which information is transferred. It is measured in bits per second. There are three selections: 9600, 19200 or 115200. The default is 9600.

Default Settings

STERIS Part Numbers RLM26HDT, RLM26HDTNPWR			
Setting	Default	Setting	Default
Backlight Brightness	100	Custom Aspect Settings	
Contrast	50	H Offset	+0
Phase	Resolution Dependent	V Offset	+0
Frequency	100	Color	
Sharpness	0	Red Gain	50
Color Saturation	50	Green Gain	50
Hue	50	Blue Gain	50
Color Temperature	6500K	Red Bias	50
Black-Level Offset	Auto	Green Bias	50
Black Stretch	50	Blue Bias	50
White Stretch	50	Language	English
Digital Brightness	50	OSD Setting	
Picture Format	Full Screen	Transparency	50
Freeze Frame	Off	OSD Timeout	20
PIP	Off	OSD H Position	50
PIP Adjustments		OSD V Position	50
PIP Size	4	RGB Video Color Space	RGB
H Position	+0	DVI Video Color Space	RGB
V Position	+0	Noise Reduction	Off
PIP Transparency	0	EQ Enable	Off
Red Enhance	Off	Backlight Mode	Off
		Gamma	2.2a
		Serial Baud Rate	9600

Table 2: Default Settings



Monitor Care / Troubleshooting

Monitor Care

LCD Panel

STERIS monitors feature an optical quality acrylic panel specially coated for superior anti-reflective properties. The panel can be damaged (scratched and/or clouded) if improper cleaning solutions are used. The following STERIS products have been tested on the panel and can be used for cleaning and disinfecting to ensure the panel does not become compromised*:

Coverage® Spray HB Plus
Ready-to-Use Disinfectant
Cleaner
Product # 1624



Coverage® Spray TB Plus
Ready-to-Use Disinfectant
Cleaner
Product # 1629



Cabinet

To not damage the powder-coated finish on the monitor cabinet, the cleaning and disinfecting products recommended above can be used.

*If the STERIS products are not available, a mixture of 50% methyl or ethyl alcohol and 50% water can be used to clean both the panel and monitor cabinet.

Use a clean, soft, microfiber cloth to apply the STERIS products and/or the alcohol and water solution to the panel and cabinet. Do not spray cleaning solution directly on the monitor.

Storage

If the monitor will not be used for an extended period of time, remove the power plug from the AC outlet (if applicable and accessible). Store in its original carton if available. Store in a dry location in temperatures between -4 and 140 degrees Fahrenheit, as listed on the Specifications page of this manual.

Troubleshooting

Please follow these troubleshooting tips prior to contacting Customer Support.

The image is not displayed on the screen

- Are the power cord and external power supply connected properly and are the power cord and AC outlet functional?
- Are the computer and/or video source(s) connected to the monitor properly?
- Are the computer and/or video source(s) turned on?
- Was the monitor turned on by pressing the power button?
- Has an input (video) signal been chosen that correlates to the video input(s) on the monitor?
- Is the monitor connected to a computer that is in power-saving mode (check computer manual for this feature)?
- Is the video cable functional?

The user interface buttons do not work

- Is keypad lock on? See p. 20 for directions for unlocking keypad.

The image is shifted or not centered

- In the "Layout" menu, use the H Position and V Position settings to reorient.
- If using a scope, it may not be centered with the camera head.

The image is glaring or dark

- Decrease/Increase the Brightness of the monitor.
- If using a camera as the video source, perform a "White Balance" and check the "Iris Control" on the camera (see camera's operating manual for instructions).



Specifications

VividImage® T Part #	RLM26HDT, RLM26HDTNPWR
INPUTS:	
Composite / Hi-Line Composite	•
S-Video	•
RGBHV (VGA) / RGB / RGBS	•
YPbPr	•
SDI / HD-SDI / 3G-SDI	•
DVI	•
Fiber*	•
Display Port	•
Serial RS232 Control	•
Composite / Hi-Line Composite	•
S-Video	•
Resolution / Aspect Ratio	1920 x 1200 / 16:10
Pixel Pitch (mm)	0.2865 (H) x 0.2865 (V)
Display Colors	16.7M
Brightness / Contrast	350 cd/m ² / 1500 to 1
Active Screen Size, Diagonal	26 inches
Viewing Angle (Horizontal & Vertical)	176°
Patient Vicinity Safe	•
Integrated Microphone	Optional (RLMA26MICT)
Dimensions (in / mm)	
Width	24.8 / 630
Height	17.4 / 442
Depth	3.4 / 86
Weight (lb / kg)	21 / 10
Active Matrix LCD	•
Panel Response Time	8 ms
Presets	Factory Presets and 6 Customizable Presets
Supported Image Enhancements	Red Enhance, Enhanced Sharpness and SD Noise Reduction
Operating Temperature	32° to 104° Fahrenheit / 0° to 40° Celsius
Storage Temperature	-4° to 140° Fahrenheit / -20° to 60° Celsius
Voltage: Monitor Input	24V DC
Voltage: Power Supply	100 - 250V AC
Case	Aluminum, Sealed
Cable Cover / Advanced Cable Mgmt.	•
Mounting Hole Pattern	VESA 100mm & 75mm
Compliance	ANSI/AAMI ES60601-1 (2005 + C1:09 + A2:10) (Medical Electrical Equipment – Part 1: General Requirements for Basic Safety and Essential Performance) CAN/CSA-C22.2 No. 60601-1 (2008) (Medical Electrical Equipment – Part 1: General Requirements for Basic Safety and Essential Performance), CE

Table 3: Specifications

Glossary

Backlight Brightness: The intensity of light emitted from the LCD Display. This control is similar to the effect of changing the light behind a stained glass window. As the illumination is increased the overall light output of the image is increased. The proper adjustment takes into consideration the ambient light in the room. For a brightly lit room, the brightness of the display may be increased to improve the visibility of the image. In a dimly lit room, the brightness may be decreased to reduce the impact on the eye.

Bias (Red, Green, Blue): Increasing the offset of a color increases the proportion of that color in the background of the image.

The level of the selected color is varied equally for all proportions. For example:

Color Number 1 Proportions	Offset Increase	New Color Proportions
Red = 20%	5%	Red = 20% + 5% = 25%
Green = 70%	0%	Green = 70%
Blue = 40%	0%	Blue = 40%

Color Number 2 Proportions	Offset Increase	New Color Proportions
Red = 60%	5%	Red = 60% + 5% = 65%
Green = 40%	0%	Green = 40%
Blue = 30%	0%	Blue = 30%

Color Saturation: Saturation refers to the purity of any particular color component (Red, Green or Blue). For example, 100% Red saturation is 100% Red, 0% Green and 0% Blue. No saturation means all the color percentages are equal. Changes in saturation will change the emphasis of the selected color component.

Color Temperature: Color is expressed as a temperature due to the relationship between the color of light and temperatures when objects are heated to high temperatures. A low color temperature results in an image that is warmer (redder), while high color temperature produces a colder (bluer)

Contrast: Contrast is the differentiation between variations of similar colors. Typically contrast is set by adjusting for best color differentiation between light yellow and white.

Digital Brightness: This adjustment changes the color of the pixels in the image so they appear brighter. Adjusting this brightness control may give a more noticeable result than adjusting the backlight brightness.

Frequency: This adjustment is seldom necessary, but if there is a problem with the frequency of the monitor pixel clock that it cannot exactly match the clock signal from the camera, an adjustment may be required. The symptom of a frequency adjustment problem is the appearance of vertical bands in the image. Adjustment to the frequency setting will help eliminate these artifacts.

Gain (Red, Green, Blue): Increases in the gain of a color multiplies the proportion of that color in the image by a factor. The actual amount of additional color is relative to the original level of that color in the image. If we vary the Gain of the Red by 10% we add 10% of the original color to the original color proportion to get the new color.

Original Color Proportions	Gain Increase	New Color Proportions
Red = 20%	10%	Red = 20% + 0.1 x 20% = 22%
Green = 70%	0%	Green = 70%
Blue = 40%	0%	Blue = 40%

Color Number 2 Proportions	Gain Increase	New Color Proportions
Red = 60%	10%	Red = 60% + 0.1 x 60% = 66%
Green = 40%	0%	Green = 40%
Blue = 30%	0%	Blue = 30%

Notice that the increase in the color proportion of the Red is greater for greater original color proportions of Red. Lighter reds are increased a lesser amount than darker reds as gain is increased.

Noise Reduction: Uses a per-pixel motion adaptive algorithm to remove noise from the image while leaving the image content, motion and detail intact. It also blocks artifacts.

Note that Red has been increased by 5% regardless of its original proportion.

Since increasing the bias will add additional proportions of the color, care must be taken to assure that variations for very weak and very intense sections of the image do not lose their "Contrast" (ability to detect subtle variations between colors).

Phase: This adjustment is seldom necessary, but if there is a problem with the monitor pixel clock phase or position in relation to the pixel clock generated by the camera, a phase adjustment may be required. The symptom of phase problems is the appearance of horizontal lines flickering through the image.

Sharpness: This control allows vertical edges of displayed objects to be sharpened and compensates for a picture or camera with a lack of video bandwidth. If the picture appears blurry on vertical edges of objects, then the Sharpness control can help improve the picture quality, but too high a Sharpness setting on an already sharp image will cause ghosting.

Hue: Hue refers to the "shade" of the colors. Adjustment of this feature is applicable primarily to analog signal sources. S-Video, RGB and VGA are analog signals. Adjustment of Hue will help to correct abnormalities in the signal. The adjustment can help in restoring the "natural" look of the colors.

Cable Pin Outs

Pin	Description
Tip	+
Ring	-
Shield	Gnd

Table 1: Microphone Cable Mini-Jack Connector Pin-Outs

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Contact Customer Support



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