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RMT-150 Series

- RMT-150-A
- RMT-150-SD

15" Audio/Video LCD Monitor

User Guide

Part Number 821701, Revision B

panorama®

the video division of  Wohler

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RMT-150 Series User Guide

Introduction

Overview

By employing a 1024 x 768 TFT/LCD screen, a perfect medium is reached in the scaling and interpolation process, providing superb imaging regardless of video format. This monitor comes with a plethora of in-monitor display features including level metering and built-in speaker monitoring of its dual stereo analog inputs.

Topics

Topics	Page
Introduction	1
Safety Instructions	2
Unpacking and Installation	3
Product Distinctions	4
Features	4
Specifications	4
Dimensions	7
In Monitor Features	9
Front Control Panel	10
Rear Panel Connectors and Controls	17
Technical Functional Overview	20

Safety Instructions

1. Read, keep, and follow all of these instructions; heed all warnings.
2. Do not use this equipment near water.
3. Use only a dry cloth to clean the equipment.
4. Do not block any ventilation openings. Install only in accordance with the instructions in the section entitled, “[Unpacking and Installation](#)” on [page 3](#).
5. Do not install near any heat source such as a radiator, heat register, amplifier, or stove.
6. Do not expose the equipment to rain or moisture.
7. Do not attempt to plug the unit into a two-blade outlet (with only two prongs of equal width).

IMPORTANT: By design, these monitors will only plug into a three-prong outlet for your safety. If the plug does not fit into your outlet, contact an electrician to replace the obsolete outlet.

8. Protect the power cord from being walked on or pinched, particularly at plug's source on the equipment and at the socket.
9. Use only the attachments/accessories specified by the manufacturer.
10. Unplug the equipment during lightning storms or when unused for long periods of time.
11. Refer all servicing to qualified service personnel. Servicing will be required under all of the following conditions:
 - The equipment has been damaged in any way, such as when the power-supply cord or plug is damaged.
 - Liquid had been spilled or objects have fallen onto the equipment.
 - The equipment has been exposed to rain or moisture.
 - The equipment does not operate normally.
 - The equipment has been dropped.

Unpacking and Installation

Carton Contents

Unpack the RMT-150 Series monitor and inspect for any apparent physical damage that may have occurred in transit. In addition to the monitor, the package should contain:

- The monitor
- A power cord, and
- A warranty card
- Optional: A rack-mount frame and VESA-100 mount.

Note: We recommend you retain the shipping carton for future use.

Installing the RMT-150 Series Monitor into a Rack

To assemble for rack mounting, follow the instructions below.

1. Place the monitor screen down on a soft surface, to install the rack ears and VESA-100 mount.
2. Since the monitor comes already assembled for the table top option, remove the screws to remove the table stand.
3. Attach the external component of the VESA-100 mount to the rack ears.
4. Attach the internal component of the VESA-100 mount to the monitor.
5. Install the monitor into a 19" rack.
6. Connect the required signals. For BNC connections use 75 ohm-rated connectors.
7. Connect AC mains power using the included EIC power cord. Please ground the unit to ensure proper operation.

Product Distinctions

The RMT-150-SD has all of the inputs the RMT-150-A has plus two SD-SDI inputs. See the [Specifications](#) below for details.

Features

- 1024 x 768 screen resolution (4:3 native aspect)
- Four bar-graph audio meters in display
- Audio may be monitored from internal speakers or headphones
- Rack or table-top mounting
- Tri-color tally light
- Two CVBS inputs and four audio inputs.

Specifications

Table 1–1 Specifications for the RMT-150 Series

Specification	RMT-150-A	RMT-150-SD
Display Area	15" diagonal; 11.97" x 8.98" (304.13 mm x 228.10 mm)	
Viewing Angles	Desktop: 70° Up, 20°Down; Rack Mount: 20° Up, 70° Down	
Color Depth	16.7 M	
Resolution	1024 H x 768 V	
Dot Pitch	0.297 m x 0.297 mm	
Brightness	250 cd/m ²	
Contrast Ratio	600:1	
Power	100-240V AC50-60Hz, 30W	
Operating Temperature	32° to 140° F (0° to 60° C)	
Rack Height	7 RU (12.37" or 314.2 mm)	

Table 1–1 Specifications for the RMT-150 Series

Specification	RMT-150-A	RMT-150-SD
Inputs	<ul style="list-style-type: none"> • 1 CVBS • 1 CVBS Y/C-YpbPr • 1 VGA-DVI • 4 Audio 	<ul style="list-style-type: none"> • 2 SD-SDI • 1 CVBS • 1 CVBS Y/C-YpbPr • 1 VGA-DVI • 4 Audio
Outputs	<ul style="list-style-type: none"> • 2 Audio 	<ul style="list-style-type: none"> • 1 SD-SDI • 2 Audio

Note: All specifications are subject to change without notice.

Overscan and normal outputs are 1024 x 768, and the color is 601.

Table 1–2 Standard Definition Video, Frame Refresh Rate, and Color Matrix (1024X 768)

Signal	Overscan	Normal	Frame
NTSC	684 x 463	720x 480	30
PAL	684 x 548	720x 576	25
SECAM	684 x 548	720x 576	25
NTSC-4.43	684 x 463	720x 480	30
PAL-M	684 x 463	720x 480	30
480I60,	684 x 463	720x 480	30
576I50	684 x 548	720x 576	25

Note: The RMT-150 Series monitors do not accept progressive video formats.

Table 1–3 Signal Formats for the RMT-150-A and RMT-150-SD

Input Terminal SelectArea	Signal Type of Input Terminal	Signal Format
SDI-1	SDI	480I60, 576I50
SDI-2	SDI	480I60, 576I50
Line-1	Video	NTSC, PAL, SECAM, NTSC-4.43,
Line-2	Video	NTSC, PAL, SECAM, NTSC-4.43,
	Y/C	NTSC, PAL, SECAM, NTSC-4.43,
	Ypbpr	480I60, 576I50

Table 1–3 Signal Formats for the RMT-150-A and RMT-150-SD

Input Terminal SelectArea	Signal Type of Input Terminal	Signal Format
DVI-I	VGA	VGA@(60-75), SVGA@(60-75), XGA@(60-75), SXGA@(60-75)
	DVI-D	VGA@(60-75), SVGA@(60-75), XGA@(60-75), SXGA@(60-75)

Table 1–4 Additional Signal Formats for the RMT-150-SD

Input Terminal SelectArea	Signal Type of Input Terminal	Signal Format
SDI-1	SDI	480I60, 576I50
SDI-2	SDI	480I60, 576I50

When the signal successfully displays on the screen, the function option buttons on the front panel may behave differently or have no effect, depending on the input terminal or the input signal type. The detailed corresponding relationships are listed in [Table 1-5](#) below.

Table 1–5 Controls to Signal Relationships

Input Terminal Select Area ---Button Items		Line-1	Line-2			SDI-1 or SDI-2 ^a	DVI-I	
Control		Video	Video	Y/C	Ypbpr SD	SDI SD	VGA	DVI-D
Function Button / Menu	Scan	✓	✓	✓	✓	✓	—	—
	H/V	—	—	—	—	✓	—	—
	Blue/Mono	✓	✓	✓	✓	✓	—	—
	Marker	✓	✓	✓	✓	✓	—	—
	Auto Adjust	—	—	—	—	—	✓	—
	Status	✓	✓	✓	✓	✓	✓	✓
	UMD - Color	✓	✓	✓	✓	✓	—	—
	Meter - Display	✓	✓	✓	✓	✓	—	—
	Meter Size	✓	✓	✓	✓	✓	—	—
	Speaker Out	✓	✓	✓	✓	✓	—	—

Figure 1–2 Rear View

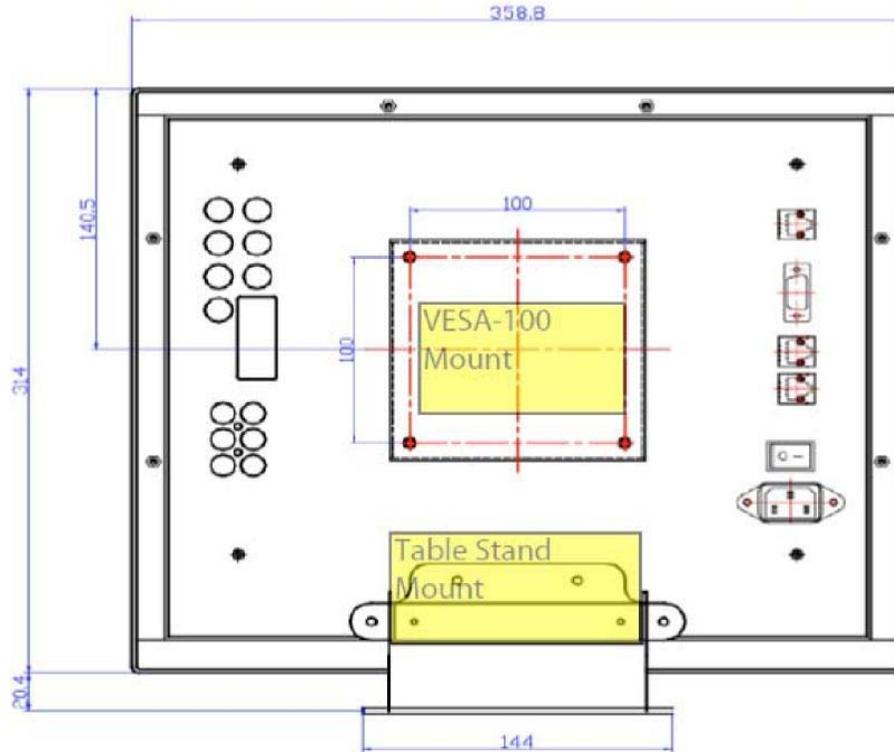


Figure 1–3 Side View (with Table Top Stand)

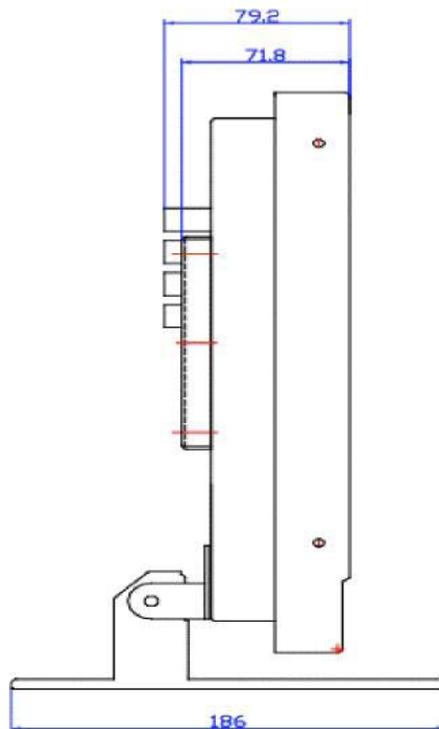
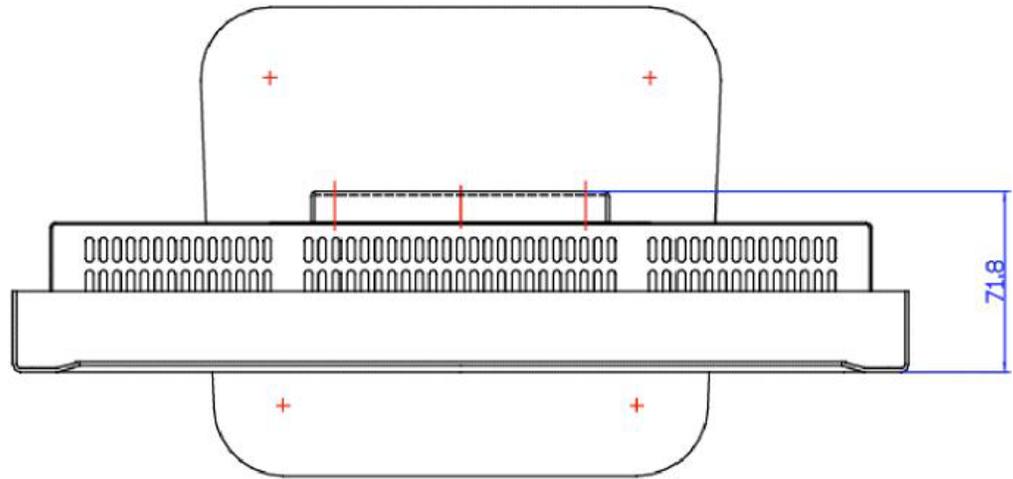
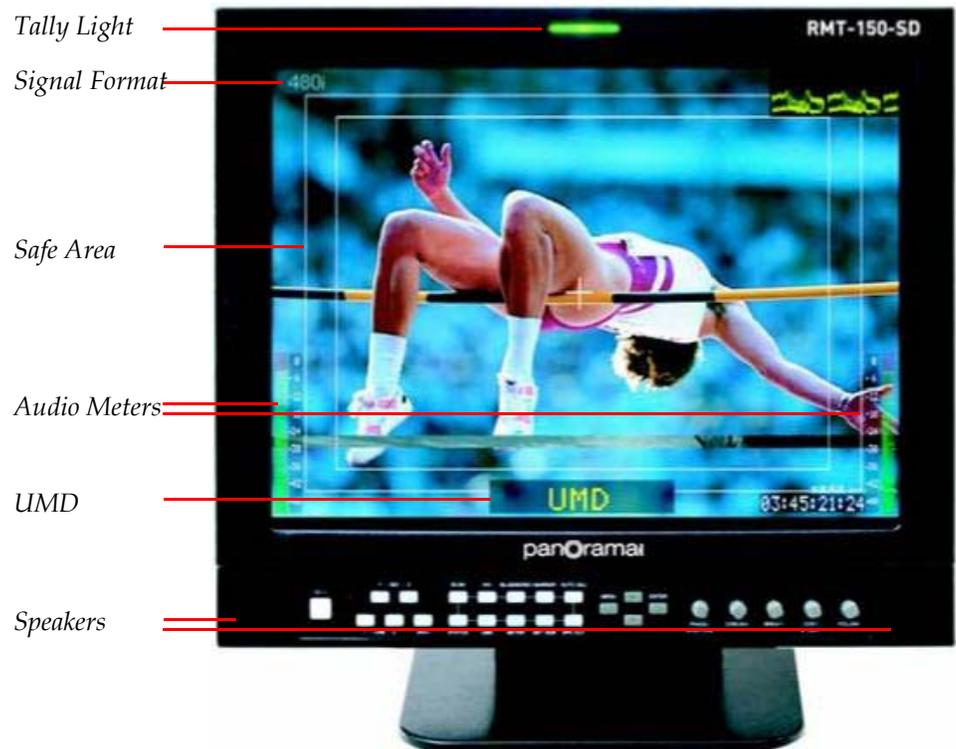


Figure 1–4 Top View



In Monitor Features

Figure 1–5 Monitor Display and Audio Features



Note: While the image in [Figure 1-5](#) shows a waveform, this monitor does not currently come with this feature.

Tally Light: The tally can display three colors: green, red, and amber and you can control it by the GPI RJ45 connector on the right rear panel.

Signal Format: The monitor automatically detects the input signal format and displays it in the top left corner of the display. By pressing the **Status** button on the front control panel, you can set it to **On**, **Off**, and **Auto**.

Safe Area: Using the **Marker** button on the front control panel, you can turn the safe marker to **Off**, **Safe**, and **Safe+Center**.

Audio Meters: Using the **Meter** button on the front control panel, you can turn the audio meters to **Meter 1**, **Meter 2**, **Meter 1+Meter 2**, or **Off**.

UMD (User-Modifiable Data): Using the **UMD** button on the front control panel, you can turn the **UMD** on or off and change the color. Available settings for this button include: **Red**, **Green**, **Yellow**, or **White**. You can edit the **UMD** text in the OSD MENU.

Speakers: Using the **SPK OUT** button on the front control panel, you can select from two inputs to meter.

Front Control Panel

The following descriptions refer to the front panel buttons starting from left to right except for the model-specific controls.

Input Selection Buttons

Pressing any of the buttons in this section lights the button.

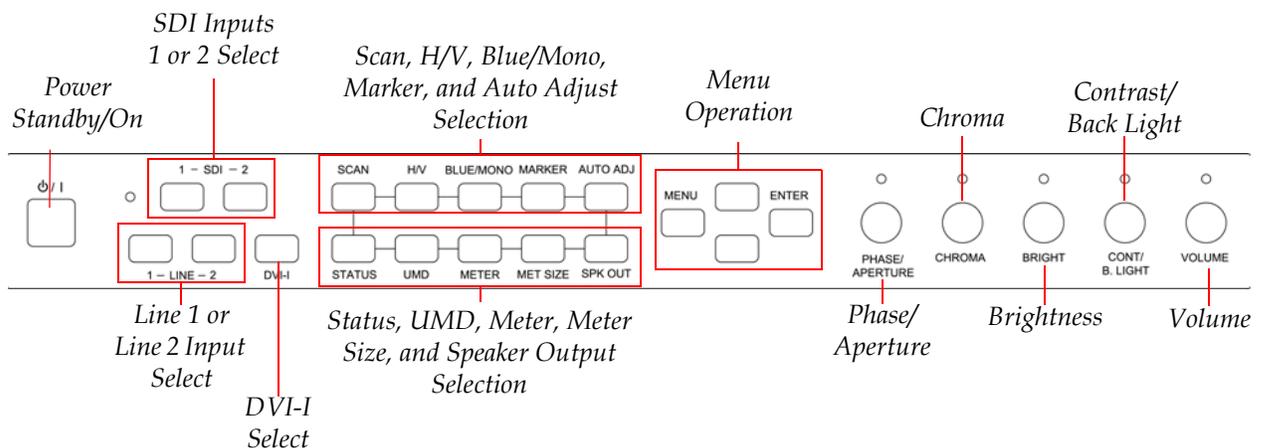
- **Power Standby/On Switch:** To turn the A/C mains power on, refer to the Power Switch on page [20](#). Press this button to turn on the power of this unit or to set this unit in the standby mode. Last settings recall with power.
 - **Unlit:** The monitor is completely off (mains switch is off).

- **Green:** The monitor is on.
- **Red:** The monitor is idle (standby).
- **LINE 1 – VIDEO Input Select Button/Lamp:** The signal of the LINE 1 input displays on the screen.
- **LINE 2 – LINE 2 Input Select Button/Lamp:** Pressing this button repeatedly allows you to select from the following three input types:
 - VIDEO
 - Y/C
 - YPbPr
- **SDI 1 – SDI1 Input Select Button/Lamp:** The signal of the SDI 1 input displays on the screen.

Note: This button is disabled on the RMT-150-A.
- **SDI 2 – SDI2 Input Select Button/Lamp:** The signal of the SDI 2 input displays on the screen.

Note: This button is disabled on the RMT-150-A.
- **DVI-I – DVI-I Input Select Button/Lamp:** Pressing this button repeatedly allows you to select from the following two input types:
 - Analog VGA (with adaptors)
 - Digital DVI-D

Figure 1–6 Front Control Panel - SD-SDI Models



Option Buttons

Pressing any of the buttons in this section and selecting a non-default value lights the button.

- **SCAN – Scan Button/Lamp:** Press this button to switch the display between **NORMAL** and **OVER** (overscan). It can save the state, when the monitor is powered off.
 - Note:** For VGA or DVI-D input signal types, the default is **NORMAL** and this button has no effect.
- **H/V – H/V Delay Switch Button/Lamp:** For SDI input signals only, use this button to select **H**, **V**, **H/V**, and **OFF**. However, it does not save state, when power-off.
 - Note:** The **H/V** button only works for SDI inputs and has no effect for any other input signal types.
- **BLUE/MONO – Blue/Mono Switch Button/Lamp:** Press this button to switch modes of **BLUE**, **MONO** and **OFF**. This button lamp lights only when you press **BLUE** or **MONO** menu. It does not save the state, when the power is off.
 - Note:** For VGA or DVI-D input signal, its default mode always is **OFF** and pressing this button has no effect.
- **MARKER – Marker Button/Lamp:** Press this button to switch between **SAFE**, **SAFE + CENTER** and **OFF**. This button lamp lights only when you press **SAFE** or **SAFE + CENTER** on the menu. It can save the state, when the monitor is powered off.
 - Note:** For VGA or DVI-D input signal, its default mode is **OFF** and this button does not work.
- **AUTO ADJ – Auto-Adjust Button/Lamp:** Pressing this button starts the auto-adjust sequence and turns on the light. When the auto adjustment is finished, its lamp will turn off.
 - Note:** This button is only works for VGA input signals.
- **STATUS – Status Indication Button:** Press this button to switch the status: **AUTO**, **ON** and **OFF**. The status bar is displayed on the up left corner of the screen.
 - When set to **AUTO**, the status bar will display, while the signal state or input information changes. The status bar

automatically disappears in about 15 seconds after the last status operation.

- When set to **ON**, the state bar displays all the time.
 - When set to **OFF**, the state does not display.
- **UMD – UMD Character Color Set-up And On/Off Status Button:** Select the character color: **RED, GREEN, YELLOW, WHITE** or **OFF**.
 - Note:** For VGA or DVI-D input signal, its default mode is **OFF** and this button has not effect.
 - **METER – Meter Button:** Press this button to switch the display modes of audio meter, which are **METER1, METER2, METER1 + METER2** and **OFF**. Repeatedly pressing the button allows you to cycle the display modes listed above.
 - Note:** This button has no effect for VGA or DVI-D input signals.
 - **METER SIZE – Meter Size Button:** Press this button to switch the **METER SIZE** between **SMALL** and **LARGE**.
 - Note:** The **Meter Size** button only works when the meters are displayed.
 - **SPK OUT – Speaker Output Button:** Press this button to select speaker output from **METER1** and **METER2**. The speaker output will mute for VGA and DVI-D input.

Menu Buttons

For a description of how to use the menu and the options available for selection, refer to [Using the Menu on page 14](#).

Buttons

- **MENU – Menu Button:** Repeatedly pressing the **Menu** button displays a selection menu with the following configurable options:
 - METER1L
 - METER1R

- METER2L
 - METER2R
 - COLOR TEMP
 - ASPECT
 - UMD CHAR
- **UP, DOWN – Up or Down Buttons:** Up/down navigation of the selected menu or menu option values.
 - **ENTER – Enter Button:** For all the menu options except the UMD CHAR menu, the **Menu** button selects the option and allows you to step through the option's values with the **Up/Down** buttons. Once the option value you want is highlighted, press the **Enter** button to select it. In the UMD CHAR menu, press this button to select the UMD character position.

Using the Menu

Press the **Menu** button to display the menu. When the first menu option appears, pressing the **Menu** button repeatedly will step through each of the options. All of the menus will automatically disappear in about 15 seconds after the last menu operation.

Table 1–6 OSD (On Screen Display Menu)

Menu	Available Options
METER 1L, METER 1R, METER 2L, or METER 2R	<p>Input audio mode. When the input signal is VGA and DVI-D, no audio mode can be selected.</p> <ul style="list-style-type: none"> • When the input signal is SDI, the available audio modes are: <ul style="list-style-type: none"> • NO • EBD1, through EBD16, (in increments of 1) • AUD1L, AUD1R, AUD2L, or AUD2R • When the input signal is VIDEO, Y/C, YPBPR, the available audio modes are: <ul style="list-style-type: none"> • NO • AUD1L, AUD1R, AUD2L, or AUD2R
COLOR TEMP	<p>Color Temperature. The COLOR TEMP menu is only available when the input signal is VGA and DVI-D. Available options are:</p> <ul style="list-style-type: none"> • D93 • D56 • D65
ASPECT	<p>Aspect Ratio: available options are:</p> <ul style="list-style-type: none"> • 4:3 • 16:9
UMD CHAR	<p>UMD Characters. This menu behaves somewhat differently than the others. Instead of selecting a single value, as is typical of the other menu options, you can select the values for up to 10 characters, including:</p> <ul style="list-style-type: none"> • Upper case alphabet • Lower case alphabet • Numerals 0 to 9 • Many symbols

Rotary Knobs

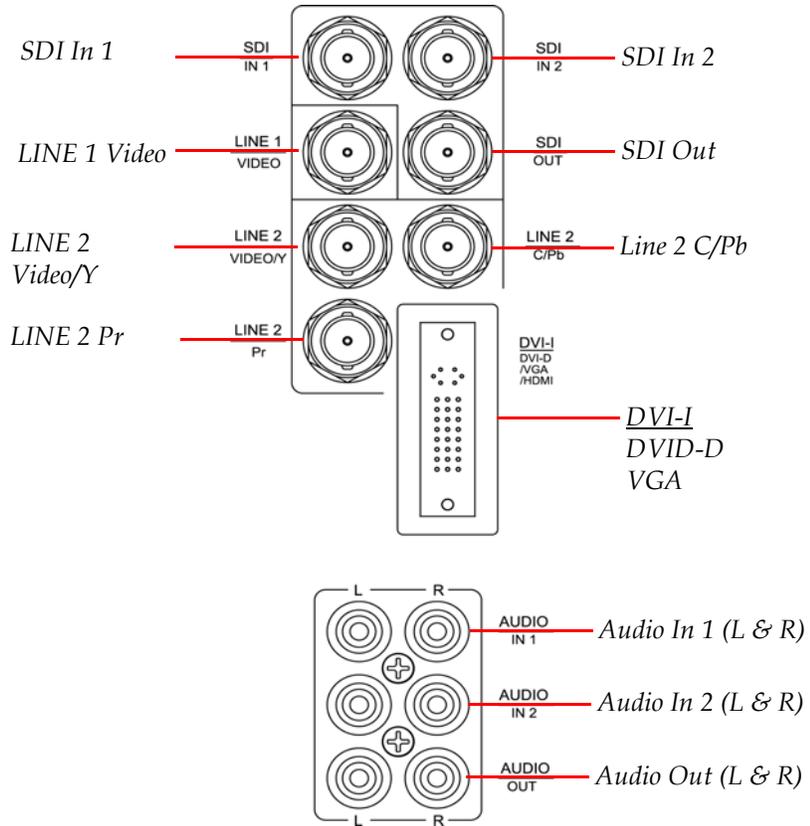
Pressing any of the knobs repeatedly steps through the configurable options and then finally disappears from the display.

When any of the knobs are set to non-default values, the indicator above the knob lights.

- **PHASE/APERTURE:** Displays and adjusts picture hue and sharpness. Both of the adjustment values range from 0 to 100.
 - Note:** The **APERTURE** adjustment is *not* available for DVI-I inputs of VGA or DVI-D.
- **CHROMA:** Displays and adjusts picture color saturation. Adjustment values range from 0 to 100.
 - Note:** When the input signals are VGA or DVI-D, this knob is not available.
- **BRIGHT:** Displays and adjusts picture brightness. Adjustment values range: 0 through 100.
- **CONT/B.LIGHT:** Displays and adjusts image contrast and backlight intensity. Both of the adjustment values range from 0 to 100.
 - Note:** Backlight intensity is a factor in the operating life of the backlight. Reducing the intensity will lengthen the backlight life and increasing the intensity will decrease backlight life.
- **VOLUME:** Pressing the knob toggles the mute on and off. Turning the knob will adjust the speaker volume. **VOLUME** adjustment range is from 0 to 30.
 - Note:** For VGA or DVI-D input signal, there is no audio and the default is **MUTE**.

Rear Panel Connectors and Controls

Figure 1–7 Rear Panel (Left Side)



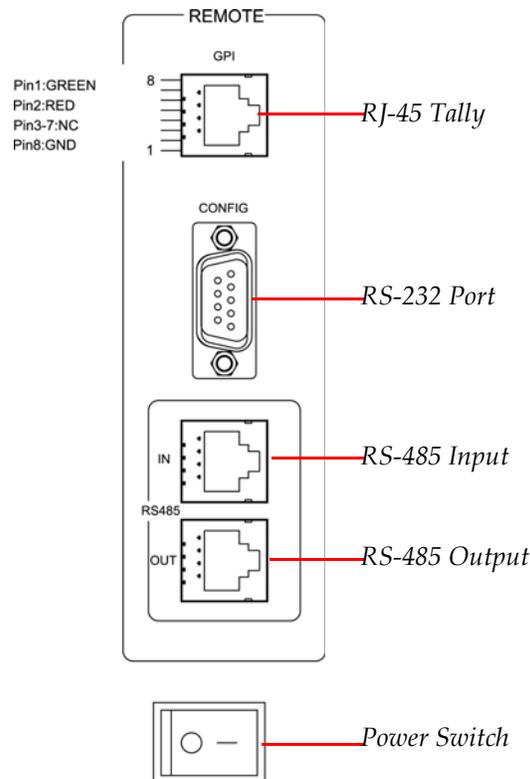
- **SDI IN 1 – SDI 1 Input:** SD-SDI input signal that is in compliance with SMPTE259M and ITU-R BT656 standard.
Note: This connector is disabled on the RMT-150-A.
- **SDI IN 2 – SDI 2 Input:** SD-SDI input signal that is in compliance with SMPTE259M and ITU-R BT656 standard.
Note: This connector is disabled on the RMT-150-A.
- **SDI OUT – SDI Output:** Output terminal for selected SDI signal.
- **LINE1 (VIDEO) – LINE 1 Input:** Analog composite video signal only.
- **LINE2 (VIDEO/Y) – LINE 2 Input:** Analog composite video input signal, or luminance (Y) signal of Y/C or YPrPb.

RMT-150 Series User Guide

Rear Panel Connectors and Controls

- **LINE2 (C/Pb) – LINE 2 Input:** Chroma (C) signal of Y/C or Pb (Blue) component of YPrPb.
- **LINE2 (Pr) – LINE 2 Input:** Pr (Red) component of YPrPb.
- **DVI-I(DVI-D/VGA) – DVI-I Input:** DVI analog/digital. Requires adapter for VGA signals. Doesn't support HDMI input signals.
- **AUDIO IN 1 – Analog Audio (IN 1):** Input terminal for the analog audio signal. **L:** left audio channel; **R:** right audio channel.
- **AUDIO IN 2 – Analog Audio (IN 2):** Input terminal for the analog audio signal. **L:** left audio channel; **R:** right audio channel.
- **AUDIO OUT – Analog Audio Output**

Figure 1–8 Rear Panel (Right Side)



- **RJ-45 Tally:** This connector allows you to light and change of the colors of the tally light on the top of the front panel.

Figure 1–9 Tally GPI RJ-45 Pin Numbering Schema

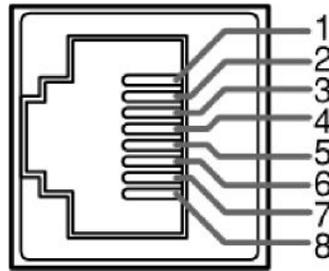


Table 1–7 Tally Color Definitions

Status	GPI 1 Pin	GPI 2 Pin
Green	GND	Open
Red	Open	GND
Orange	GND	GND

- **RS-232 Port:** This serial port allows for external communications and control.

Table 1–8 RS-232 Female DB-9

Pin	RS232 Signal
2	RXD
3	TXD
5	GND

- **RS-485 (In/Out) Ports:** These ports allow for external communications and control, but are not currently used.

Figure 1–10 RS-485 Pin Numbering Schema

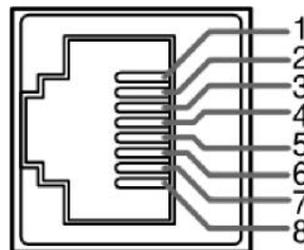


Table 1–9 RS485 Pin Out

Pin	RS485 In terminal	RS485 Out Terminal
1, 2	GND	GND
3	Tx-	Tx-
4	Rx+	Rx+

Table 1–9 RS485 Pin Out

Pin	RS485 In terminal	RS485 Out Terminal
5	Rx-	Rx-
6	Tx+	Tx+
7, 8	NC	NC

- **Power Switch:** This toggle switch turns A/C power on. See also *Power Standby/On Switch* on page 10.
- **Power Input Connector:** A power source with the capacity of more than 45W is recommended.

Technical Functional Overview

Figure 1-11 and Figure 1-12 on page 22 illustrate the overall functionality of the RMT-150 Series monitors.

Figure 1–11 RMT-150-A Block Diagram

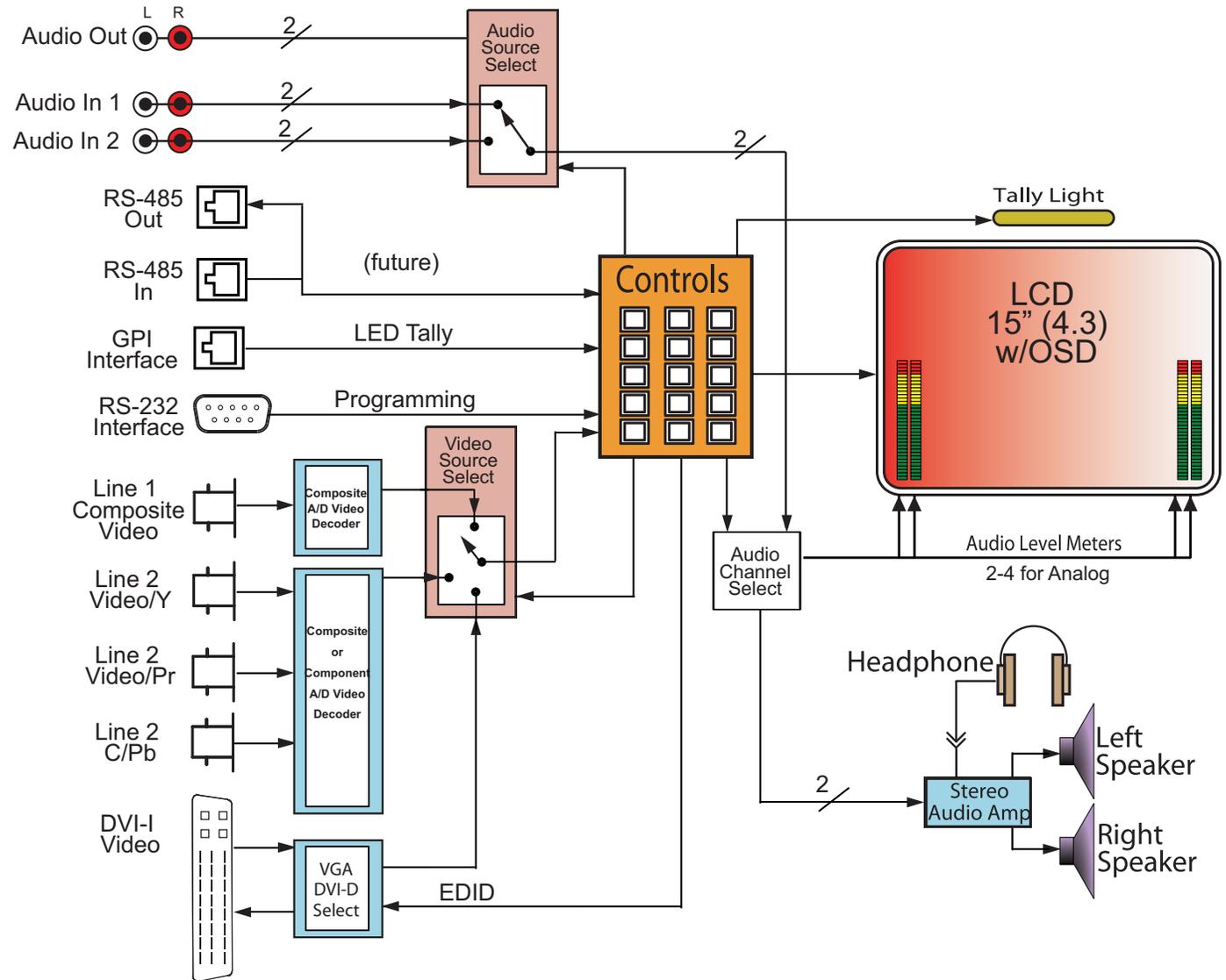


Figure 1–12 RMT-150-SD Block Diagram

