VAMP2 Series

- VAMP2-SDA
- VAMP2-MDA

2RU, Audio/Video Monitors with Level Meters

User Guide

Part Number 821667, Revision F

Wohler CONFIDENCE.
VIDEO AUDIO CAPTIONING LOUDNESS FILE-BASED SOLUTIONS
info@wohler.com www.wohler.com +1 888 5 WOHLER

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Customer Support

Wohler Technologies, Inc.
31055 Huntwood Avenue
Hayward, CA 94544
www.wohler.com

Phone: 510-870-0810
FAX: 510-870-0811
US Toll Free: 1-888-596-4537
(1-888-5-WOHLER)
Web: www.wohler.com
Sales: sales@wohler.com
Support: support@wohler.com

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VAMP2 Series User Guide

Introduction

Overview

The VAMP2 Series multi-format, multi-channel monitors are complete, exceptionally high quality stereo video/audio monitoring solutions available in a compact 2RU rack space with numerous input and output features that make these units ideal for facility-wide monitoring of analog/digital audio and video signals.

Topics

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, "Installation Recommendations" 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.

Installation Recommendations

Unpacking

Unpack the VAMP2 Series monitor from the shipping container and inspect all components for shipping damage. If you find any damage, notify the shipping carrier for claims adjustments.

Compare the shipping box contents to the packing slip. Contact Wohler's customer support personnel about any discrepancies. (Wohler's contact information in on the copyright page ii, of this manual).

Heat Dissipation

The ambient temperature inside the mounting enclosure should not exceed 40° Celsius (104° Fahrenheit). Adjacent devices can be rack mounted (or stacked) in proximity to the unit if the above temperature is not exceeded. Allow a 1RU (1.75"/44.45mm) space above and below the unit for air circulation.

Important: The heat generated by the power amplifiers, power supplies, and other components is vented by slots in the side of the unit. Therefore, as a safety precaution, we advise you to be sure to allow proper ventilation on both sides of the unit.

Rack Mounting

You should install the monitor into a standard 19" rack and requires a maximum of 4RU of rack space (the 2RU unit, plus 1RU above and below). Also, install it as close to the operator's direct viewing angle as possible as LCD screens can appear to display anomalies outside this viewing angle.

Note: In PAL mode operation, the LCD driver discards every seventh line of active video so an entire video frame fits within the display screen. This is normal for most LCDs currently on the market.

Cable Connections

Wohler recommends Beldon 8281 or Belden 1694A cables for analog video signals and Beldon 9451 cables for analog audio signals.

Power

Each unit comes with a standard 24VDC/3.0A internal power supply and connects an A/C mains power source (65W, 100 to 240 VAC, 50/60Hz) to the IEC connector provided on the rear panel of the unit.

Electrostatic Discharge (ESD)

As with most electronic equipment, static discharges can damage components within the unit. Take precautions to ensure your installation environment is not subject to ESD.

Description

In addition to their SDI inputs and outputs, both VAMP2 Series models are capable of monitoring AES and analog audio signals separately or in conjunction with CVBS and SDI video signals. In “Mix Mode” any combination of individual input channels may be selected for monitoring through the left and/or right speakers. Color coded LEDs above each level meter bar graph display indicate which channels are selected for monitoring and to which speaker they are assigned. Audio phase relationships are indicated by a bi-color (RED/GREEN) LED on the front panel. Audio input selection status is indicated by LEDs in close proximity to the selection buttons.

Analog or AES audio signals may be monitored separately from the SDI and CVBS video inputs or a Track Video feature may be used to automatically route audio input to “follow” the video input signals.

Four high-resolution 53-segment LED bar graph level meters exhibit simultaneous VU and PPM display characteristics to provide wide range visual monitoring of audio signals. Meters are tri-color (red/amber/green) and have a dynamic range of 65 dB. Bar graph brightness is adjustable using controls located on the top cover.

Applications

The VAMP2 Series is ideally suited to provide high quality multi-channel and/or digital audio and video monitoring in a very compact form. Ideal for use in VTR bays, mobile production vehicles, teleconferencing installations, multimedia systems, satellite links, cable TV facilities, and on-air radio studios.

Features

Audio

- Headphone jack (mutes speakers)
- Two audio inputs on XLR connectors
- LED indication of selection and mix settings
- Four, 53-segment Tri-color LED bar graph level meters displaying simultaneous VU and PPM characteristics
- Phase indication LEDs for each metered channel pair
- Self-powered speaker system
- Monitors and de-embeds HD/SD-SDI audio to AES and/or analog audio channels simultaneously
- AES and CVBS audio inputs with loop-through outputs
- Auxiliary analog or AES audio inputs may be monitored separately or in conjunction with the video inputs

Video

- 4″ active matrix TFT LCD display with 4:3 aspect ratio
- Auto-detection of NTSC and PAL video formats
- Digital signal status indication by LEDs
- Two SD-SDI (SDA model) or HD/SD-SDI (MDA model) video inputs and two CVBS video inputs with A/B switching
- Converts SDI video to CVBS (composite analog) video
- Monitors and de-embeds one video channel simultaneously
- Re-clocked output for selected SDI source
- Analog (composite) output of selected video source
- Re-clocked SD-SDI (SDA model) or HD/SD-SDI (MDA model) output and CVBS output de-embedded from the SDI input function regardless of other selection settings
- LED indication of selection and mix settings

Physical and Electrical

- Low power consumption
- Highest fidelity in minimum 2RU rack space.

Specifications

The VAMP2 Series monitors meet the specifications listed in Table 1–1 through Table 1–6 on page 10.

Table 1–1 Audio Specifications

Specification	VAMP2-SDA	VAMP2-MDA
Inputs	2 Banks of 4 analog on DB-25 2 Banks of 2 AES on BNC 2 Banks of 2 Balanced AES on DB-25	
Outputs	4 on Balanced AES from SDI on HD-15 2 Speakers on Terminal Posts	
Level Meters	Four 53-segment high-resolution tri-color (red/yellow/green) LED bar graphs	
Level Meter Scale	+0 dB to -66 dB	
Level Meter Mid-scale Resolution	1 dB	
Level Meter Dynamics	VU and PPM, simultaneous	
Peak Acoustic Output: (@ 2 ft.)	96 dB SPL	
Output	10 W RMS (4 Ω), left and right, 14 W peak	
Analog Input Impedance	27k Ω balanced, minimum	
Analog Input Overload	+24 dBu Balanced	
Analog Reference	+8, +6, +4, or 0 dBu	
Converted Analog Output (S/N	>90 dB	
Converted Analog Output (THD)	<0.008%	
Digital Reference	-20, -18, or -9 dBu	
AES Input Sampling Rate	32 to 48 kHz, auto-select	
AES D to A Converter	24-bit, low jitter	
AES Termination (removable)	110 Ω Balanced; 75 Ω Unbalanced	
Frequency Response (6th Octave)	80 Hz to 16 kHz, (± 7 dB -10 dB @ 50 Hz, 22 kHz)	
Hum and Noise	> -68 dB below full output	
Electrical Response	20 Hz to -20 kHz (± 1 dB)	

Table 1–1 Audio Specifications (Continued)

Specification	VAMP2-SDA	VAMP2-MDA
Electrical Distortion	< 0.15% at any level below input threshold	
Acoustic Distortion	< 1.5% Typical at frequencies above 200 Hz; 6% or less at worst case	

Table 1–2 Video Specifications

Specification	VAMP2-SDA	VAMP2-MDA
Inputs	2 SD/SDI on BNC 2 CVBS on BNC	2 HD/SD-SDI on BNC 2 CVBS on BNC
Outputs	1 Selected Video on BNC 1 CVBS from SDI on BNC 2 CVBS Loop on BNC	
CVBS Video Formats	NTSC/PAL auto-detecting	
CVBS Signal Input Type	NTSC 525/60 or PAL 625/50	
Screen Type/Size (Diagonal)	4" (96 x 76 x 6.5 mm) High-resolution LCD, active matrix TFT	
Display Image Controls	Brightness, Chroma, Tint (NTSC only) and Contrast	
Aspect Ratio	4:3	
Active Area (HxV)	3.23" H x 2.43" W (82.1 mm x 61.8 mm)	
Resolution (Dots x Lines)	1440 W x 234 V	
Resolution (Pixels x Lines)	480 H x 234 V	
Pixel Format (HxV)	1 Pixel = R+ G + B dots	
Pixel Pitch (HxV)	0.171 mm W x 0.264 mm H	
Pixel response Time	15 ms rising; 20 ms falling (typical)	
Color Configuration	RGB Delta	
Number of Colors	262,000	
Viewing Angle	Top=10°, Bottom=30°, Left=45°, Right=45°	
Contrast Ratio (typical)	150	
White Luminance (Brightness)	250 NITs (cd/m^2) typical	
Backlight Type	LED	
LED Backlight Life	10,000 hours (min.) to specified reduction	

Table 1–3 Power and Other Specifications

Specification	VAMP2-SDA	VAMP2-MDA
Magnetic Shielding	<1 Gauss any adjacent surface	
A/C Mains Input	100 to 240 VAC, 50/60 Hz universal input, with UL/CE/TUV approval	
Power Consumption	50 W max	
	100 to 240 VAC, 50/60 Hz universal input, with UL/CE/TUV approval	
Speaker Amp Power Output	20 W Transient/ 11 W Continuous RMS each side (4 Ω)	
Dimensions	3.5″ H x 19″ W x 9.5″ D (89 mm H x 483 mm W x 241 mm D)	
Weight	11.5 lbs. (5.2 kg)	

Table 1–4 SDA Model - LCD Display Video Raster Format Parameters

Format	Scan Format Standards	Frame Rate	Lines	Active Lines	Samples	Active Samples
SDTV, 54	RP 174	60	525	507/487	3432	2880
SDTV, 36	SMPTE 267	60	525	507/487	2288	1920
SDTV, 27	SMPTE 125	60	525	507/487	1716	1440
SDTV, 54	ITU-R BT 601.5	50	625	577	3456	2880
SDTV, 36	ITU-R BT 601.5	50	625	577	2304	1920
SDTV, 27	ITU-R BT 601.5	50	625	577	1728	1440

Table 1–5 MDA Model - LCD Display Video Raster Format Parameters

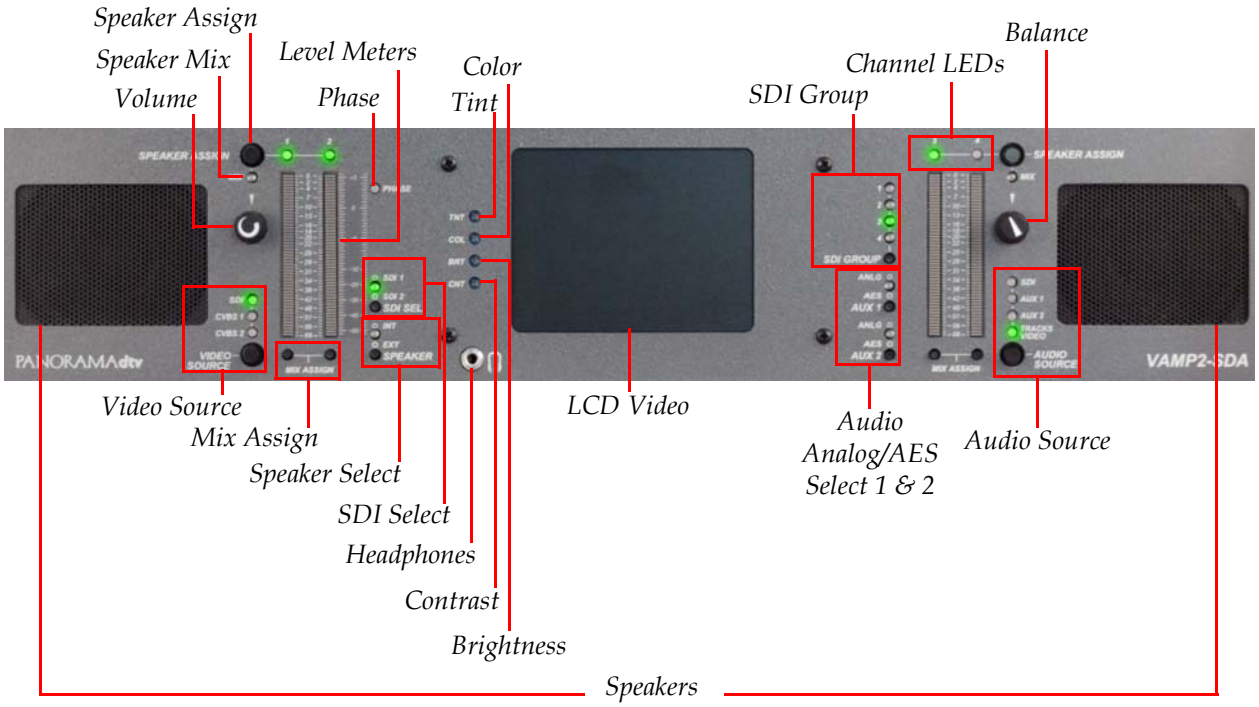
Format	Scan Format Standards	Frame Rate	Lines	Active Lines	Samples	Active Samples
SDTV, 54	RP 174	60	525	507/487	3432	2880
SDTV, 36	SMPTE 267	60	525	507/487	2288	1920
SDTV, 27	SMPTE 125	60	525	507/487	1716	1440
SDTV, 54	ITU-R BT 601.5	50	625	577	3456	2880
SDTV, 36	ITU-R BT 601.5	50	625	577	2304	1920
SDTV, 27	ITU-R BT 601.5	50	625	577	1728	1440
HDTV, 74.25	SMPTE 260	30	1125	1035	2200	1920
HDTV, 74.25	SMPTE 274	30	1125	1080	2200	1920
HDTV, 74.25	SMPTE 274	30p	1125	1080	2200	1920
HDTV, 74.25	SMPTE 274	25	1125	1080	2640	1920
HDTV, 74.25	SMPTE 274	25p	1125	1080	2640	1920
HDTV, 74.25	SMPTE 295	25	1250	1080	2376	1920
HDTV, 74.25	SMPTE 274	25p	1125	1080	2750	1920

Table 1–6 Level Meter Specifications

Specification	Values
Level Meter Type	Bar Graph
Segment Quantity	53
Level Meter Scale	0 to -66 dB
Dynamic Range	66 dB
Mid-scale Resolution	1 dB
Bar Graph Length	2.22″ (56.4 mm)
Indication Accuracy +10 to -30 dB -31 to -44 dB -45 to -55 dB	 ± 0.2 dB ± 0.3 dB ± 0.5 dB
Segment Display Colors	red, amber, green
Peak Emission Wave Length	Green=570 nm; Red=630nm
Segment Brightness (20 mA)	3.5 mcd
Segment Brightness Uniformity	<10% difference between segments
Adjacent Segment “Off” Brightness	<1% of brightness of active segment
Segment Size	0.158″ x 0.04″ (4 mm x 1 mm)
Segment Pitch	0.039″ (.99 mm)

Front Panel Features

Figure 1–1 VAMP2 Series Front Panel



- **Speakers**: The speaker system is comprised of two full-range speakers (left and right).

- **Speaker Assign** (Push Buttons, Left and Right): The general function of each of these two buttons assigns any single channel or group of channels (four maximum) separately to each of the two speakers (left and right). Table 1–8 below shows the function of each consecutive button push. Note that pushing either button a sixth time starts the cycle over.

Table 1–7 Speaker Assign Mix Configuration

Button	Button Push	Channel LED	LED Color	Speaker Assignment
Left	1	1	Green	Left
	2	2		
	3	3		
	4	4		
	5	Left Mix		

Table 1–7 Speaker Assign Mix Configuration

Button	Button Push	Channel LED	LED Color	Speaker Assignment
Right	1	1	Amber	Right
	2	2		
	3	3		
	4	4		
	5	Right Mix		

- **Mix** (LEDs, Left and Right): When the left and/or right **Speaker Assign** button is pushed a fifth time, its associated **Mix** LED glows green to indicate that channels can be added to that speaker mix (Mix Mode) by pushing the Mix Assign Buttons located under the level meters.

  Note: Although you can turn on just one Mix LED (without the other) both Mix LEDs must be on for the Mix Mode to function.

- **Mix Assign** (Buttons, 1 through 4): Each of these four push buttons is separately associated with one of each of the four lever meters (1, 2, 3, or 4). Each button is used to assign the channel monitored by the associated level meter to the left or right speaker mix only when both the left and right speaker assign buttons are in "Mix Mode" (the 5th push button in the cycle. Refer to *** for details.) When in mix mode the right and/or left **Mix** LEDs will glow. When a channel is selected using these buttons, the channel LED above the corresponding level meter will glow green when assigned to the left speaker, amber when assigned to the right speaker, and alternate between green and amber when assigned to both speakers.

- **Volume** (Rotary Potentiometer): This knob controls the loudness of the audio reproduced by the internal speakers, external speakers, or connected headphone.

- **Video Source** (Push Button and LEDs): This button selects one of three signal sources for monitoring: SDI, CVBS 1, or CVBS 2. Repeatedly pressing the source select button steps through each of the three selections. One of the three indication LEDs (SDI, CVBS 1, or CVBS 2) will glow to indicate the selected signal source.

  When SDI is selected, you can select one of the two available SDI inputs on the rear panel for monitoring using the **SDI Select** button. Note that the SDI LED will glow green if the selected SDI signal is locked, or red if the signal is unlocked.

When **CVBS 1** or **2** is selected, one of the two corresponding CVBS inputs on the rear panel is selected for monitoring. See the **Audio Select** button (page 14) for information about selecting audio inputs with video monitoring. Note that the selected CVBS LED will glow green when selected.

- **Channel Indicators** (LEDs, 1 through 4): These four LEDs (1, 2, 3, and 4) indicate when the associated channel is assigned to one or both speakers. When these LEDs glow green, the channel is assigned to the left speaker, when amber, the right speaker. When it alternates between green and amber, the channel is assigned to both speakers. The LEDs are not lit when the channel is not assigned to either speaker.

- **Level Meters** (53-Segment Bar Graph): These high-resolution, LED bar graph meters display audio levels for metered audio signals. Ballistics for these meters are factory set to display a single floating PPM dot above a VU bar; each segment's color is fixed according to its position on the scale. Reference level is +4 dBu. Dynamic range for these meters is 66 dB.

- **Phase** (Bi-Color Red/Green LED): The audio phase indicator shows the phase relationships between audio channels A (1) and B (2). The LED indicates the average phase condition by glowing green for in-phase conditions or red for out-of-phase conditions. While it is normal for stereo signals to contain some intermittent instantaneous out-of-phase and in-phase conditions (flickering red) a steady red glow of the phase indicator almost always indicates an out-of-phase alarm condition.

- **Speaker Select** (Push Button): This switch routes the audio signal to either the internal speakers or to external speakers connected to the terminal posts on the rear panel.

- **SDI Signal Lock** (LED): When the monitor receives a valid and locked SDI video signal, this LED lights green.

- **SDI Select (SEL)** (Push Button and LED Indicators): This control selects one of two inputs, HD/SD-SDI (MDA model) or SD-SDI source (SDA model) for monitoring when either the **Video Source** select button or the **Audio Source** select button is set to SDI. When the SDI 1 source is selected for monitoring, the LED will not be lit. When the SDI 2 source is selected, the LED indicator will glow green.

- **Headphone Jack** (1/4″ Connector): Select the headphone audio sources as you would for the internal speakers. When you plug in headphones, the internal or external speakers will mute.

- **Tint** (TNT): Turn this potentiometer to adjust the color hue of the video image (for NTSC signals only).

- **Chroma** (COL): Turn this potentiometer to adjust the color saturation of the video image.

- **Brightness** (BRT): Turn this potentiometer to adjust the brightness of the video image.

- **Contrast** (CNT): Turn this potentiometer to adjust the contract of the video image.

- **LCD Video** (TFT): This screen displays input video sources.

- **SDI Group Select** (Push Button): This button selects the SDI group (1, 2, 3, or 4) for monitoring when **Audio Source** select button is set to SDI or set to Tracks Video, and SDI is the video source. One of the four LEDs will glow green to indicate the selected group.

- **Audio Analog/AES Select** (Push Button and Indication LEDs): These two push buttons, **AUX 1** and **AUX 2**, toggle between the **AES** and analog (**ANLG**) inputs for the corresponding **AUX 1** and **AUX 2** input sections on the rear panel. When the analog input is selected, the LED is not lit. When the AES input is selected, the LED glows green.

- **Balance** (Rotary Potentiometer): This control pans the volume balance between the left and right speakers. If you adjust the balance hard to the left or right, the system retains a slight Left/Right channel mix so phase discrepancies remain audible.

- **Audio Source** (Push Button and Indication LEDs): This push button steps through the four audio sources below:
  - **SDI**: Monitors the audio de-embedded from the SDI inputs on the rear panel.
  - **AUX 1**: Monitors the audio input to the AUX 1 (analog or AES) inputs on the rear panel.
  - **AUX 2**: Monitors the audio input to the AUX 2 (analog or AES) inputs on the rear panel.

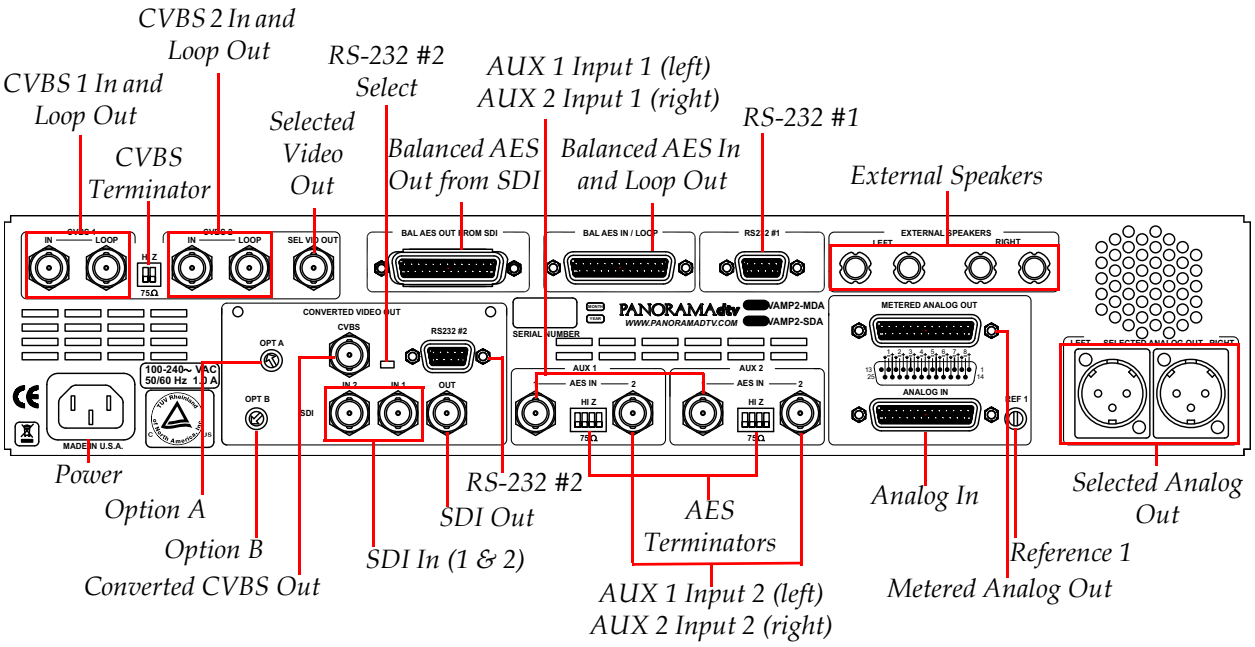
- **Tracks Video**: This setting will monitor the AUX audio source associated with the selected CVBS video source. Table 1–8 below shows the AUX input that are associated with the CVBS inputs with this setting.

Table 1–8 Tracks Video Setting Configuration

Video Source	Audio Source	AES Inputs	Analog Inputs
SDI	SDI	N/A	
CVBS 1	AUX 1	AES 1	Channels 1 & 2
			Channels 3 & 4
CVBS 2	AUX 2	AES 2	Channels 5 & 6
			Channels 7 & 8

Rear Panel Connectors

Figure 1–2 VAMP2 Series Rear Panel Connectors



- **CVBS In and Loop Out** (1 & 2 on BNC): These input connectors accept standard CVBS (composite analog) video signals. To monitor the video from these inputs, set the Video Source select button to

CVBS 1 or 2. See CVBS Terminator below for termination setting values.

- **CVBS Terminator** (Four-Position DIP Switch): Termination for the CVBS (composite analog) input connectors is adjustable through the four-position DIP switch located between the two CVBS input sections (1 and 2). The switch section nearest the associated connector sets the termination for that connector (CVBS 1 = left; CVBS 2=right). Set the switch down to terminate or up to unterminate.

- **Selected Video Out** (CVBS on BNC): This connector outputs the buffered, selected CVBS (composite analog) input (either 1 or 2).

- **Power** (IEC-320 Connector): Attach a standard IEC-320 power cord between this connector and the mains power. The front panel power LED glows green when an operating voltage is present.

- **Option A** (Rotary Switch on the MDA model, or Reset button on the SDA model): In the SDA model, this opening features a recessed, push button with a momentary reset function for the SD-SDI input module. Pressing the button with a small screwdriver or other tool will reset the SD-SDI input functions of the SDA unit. In the MDA model, this opening features a 10-position rotary switch for selecting related functions as shown in Table 1–9 below.

Table 1–9 Option A Switch Function

Position	Option A Switch Function (MDA Models Only)
0	Bootload
1	CVBS Output in NTSC
2	CVBS Output in PAL
3	CVBS Output is NTSC, Letterboxed when Input is HD
4	CVBS Output in PAL, Letterboxed when Input is HD
5	Reserved
6	
7	
8	Hardware Reset Mode
9	

When set to positions 1, 2, 3, or 4, the signals from the CVBS video output *and* the video supplied to the internal LCD will be the format described for each position in the table, (NTSC or PAL) regardless of the input format. When set to positions 3 or 4, HD-SDI input signals are letterboxed, but SD-SDI input signals are not. Setting the

switch to positions 8 or 9 resets the video scaler *and* the audio de-embedder.

- **Option B** (Rotary Switch): This opening features a 10-position rotary switch that is reserved for future use and should be left at the factory position of 1.

- **Converted CVBS Out** (from SDI, BNC-F): This female BNC connector outputs CVBS (composite) video encoded from the selected SDI input.

  In the MDA model, HD-SDI signals are down-converted for proper representation in composite video format. A switch is also installed in the MDA model to allow selection of the video scaler for communication through the RS-232 #2 connector.

  This output functions regardless of other selection settings. This feature enables encoding of the SDI signal to CVBS independent of other monitoring functions (as long as a valid SDI signal is present at the associated input).

- **RS-232 #2 Select** (Two-Position Select Switch on MDA model only): This two-position slide switch is used to select the video scaler (up) or the audio de-embedder (down) for communications through the RS-232 #2 connector.

- **RS-232 #2** (DB-9): In the SDA model, this DB-9 connector is used for downloading programming, setup, and diagnostic information into and out of the audio de-embedder. In the MDA model, it is used for downloading programming, setup, and diagnostic information into and out of the audio de-embedder *or* the video scaler. The MDA model also features a two-position slide switch for selecting the module that communicates through the connector.

  Note: You cannot input signals into both the balanced and unbalanced connectors within the same AUX section.

- **SDI In** (1 & 2 on BNC): The **In 1** and **In 2** BNC connectors accept either stand SD-SDI (SDA model) or HD/SD-SDI (MDA model) audio signals.

  In the SDA model, only standard SD-SDI audio/video signals are accepted at these two BNC input connectors.

  In the MDA model, these two BNC connectors accept both high-definition HD-SDI and standard SD-SDI audio/video signals (HD-SDI signals are automatically down converted for monitoring).

To monitor **video** from these inputs, set the following:

- The **Video Source** select button to **SDI**,
- The **SDI Input** select button to SDI input either (**In 1** or **In 2**), and
- The **SDI Group** select button to the **SDI Group** of choice (1, 2, 3, or 4).

To monitor **audio** (only) from these inputs, set the following:

- The **Audio Source** select button to SDI,
- The **SDI Input** select button input either (**In 1** or **In 2**), and
- The **SDI Group** select button to the **SDI Group** of choice (1, 2, 3, or 4).

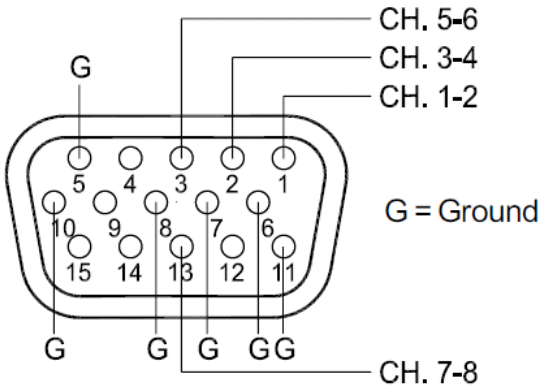
Even if SDI is not selected for monitoring through the unit, you can still select the SDI input (**In 1** or **In 2**) and use the re-clocked **SDI Output** connector and **CVBS Converted Video Output** (from an SDI input) Connector regardless of other settings. This feature enables processing of the SDI signal independent of the unit's other monitoring functions.

- **SDI Out** (BNC): The output BNC connector outputs a re-clocked HD/SD-SDI signal derived from the *selected* HD/SD-SDI input. This output functions regardless of other selection settings enabling output of the re-clocked HD/SD-SDI signal independent of the unit's other monitoring functions (as long as a valid HD/SD-SDI signal is present at the input).

- (Optional) **Unbalanced AES Out from SDI** (HD-15): Unbalanced AES signals de-embedded from the selected SDI input are output from this HD-15 connector. See Figure 1–3 on page 19 for the pin-out for this connector.

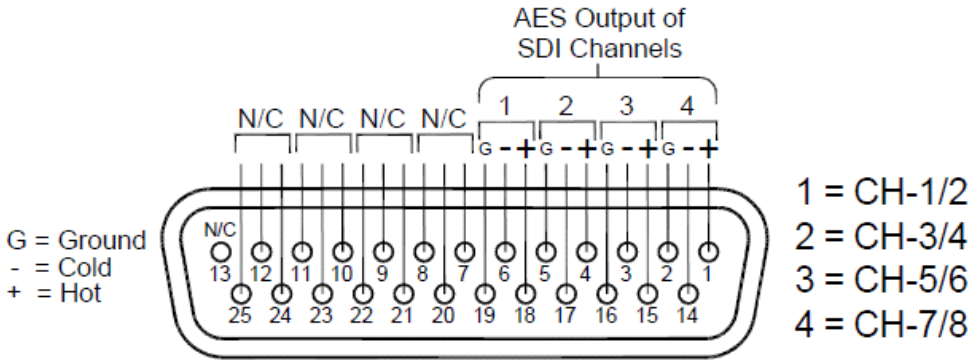
  Note: You can request the optional **Unbalanced AES Out from SDI HD-15** connector instead of the **Balanced AES Out from SDI DB-25** connector at the time you place your order.

Figure 1–3 Unbalanced AES Out from SDI HD-15 Connector Pin-Out



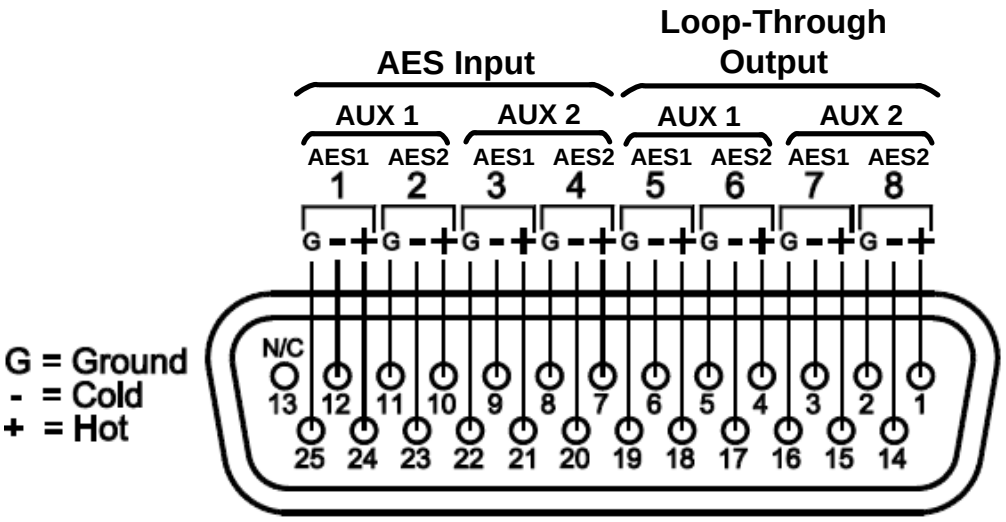
- **Balanced AES Output from SDI Input Connector** (Optional DB-25): AES signals de-embedded from the selected SDI input are output from this DB-25 connector, configured for balanced connections (110 Ω impedance). Pin-out information for the balanced DB-25 connector is shown in Figure 1–4 below.

Figure 1–4 Balanced AES Output from SDI In DB-25 Connector Pin-Out



- **Balanced AES In with Loop-Out** (DB-25): This DB-25 connector accepts AES audio signals and is configured for balanced connections (110 Ω impedance). This connector features internally connected passive loop-through outputs of the input signals. See Figure 1–5 below for pin-out information. (Refer to the AES Input Termination DIP Switch on page 24 for termination settings.) See the Audio Source Select and Audio Analog/AES Input Select buttons for selecting this input for monitoring.

Figure 1–5 Balanced AES In with Loop Out DB-25 Connector Pin-Out



- **RS-232 #1** (DB-9): This connector provides an interface for downloading the user interface, unit functionality, AES programming, setup, and diagnostic information into and out of the unit.

- **AES Input Termination** (DIP Switch): Termination for both pairs (AUX 1 and AUX 2) of the AES inputs (AES IN, 1 or 2) is adjustable through the four-position DIP switches located between each pair of input connectors. The switch section nearest the associated connector sets the termination for that connector. Move the switch down (75 Ω, balanced; 110 Ω unbalanced) to terminate the connector, or up (HI Z) to unterminate. See Figure 1–6 below and Figure 1–7 on page 21 for switch ID settings.

Figure 1–6 AUX 1 - AES Input Termination

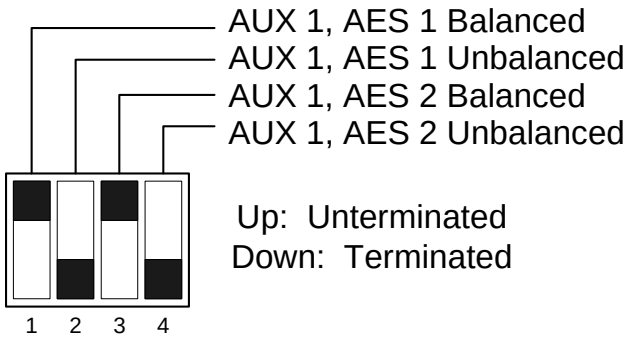


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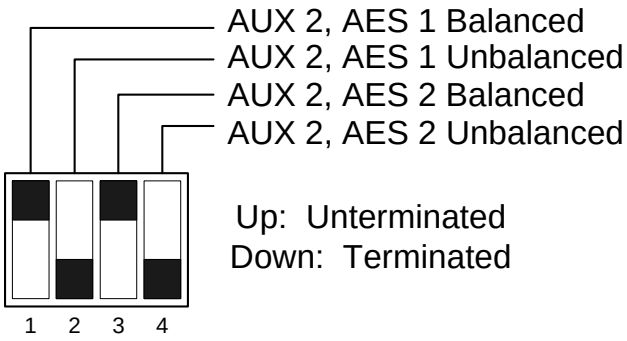
Figure 1–7 AUX 2 - AES Input Termination

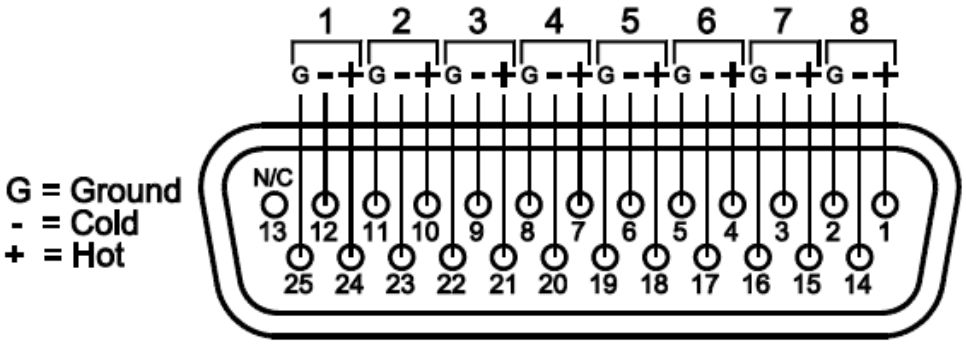


- **AUX 1 & 2 Input 1 & 2** (on BNC): The four BNC connectors in the AUX 1 and AUX 2 input sections accept standard AES audio signals and are configured for unbalanced connections (75 Ω impedance). See the Audio Source Select button and the Audio Analog/AES Select button for instructions for selecting these inputs for monitoring.

- **External Speakers** (Speaker Binding Posts, Left and Right): Connect external speakers to these binding post terminals. The left pair outputs the signals as selected for the left speaker and the right pair outputs the signals as selected for the right speaker. The binding post terminals in each output pair are color-coded for polarity; red is positive (left terminal) and black is negative (right terminal). An external amplifier is not needed to drive the external speakers.

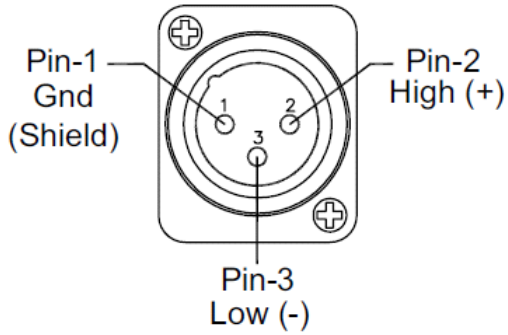
- **VAMP2 Analog In & Metered Analog Out** (DB-25-F): This connector accepts balanced, low impedance, line level analog signals. See Figure 1–8 below for pin-out information. This connector has the same pin-out as the Tascam analog DB-25.

Figure 1–8 Analog In and Metered Analog Out Connector Pin-Out



- **Selected Analog Out** (XLR-M): These two male, three-pin XLR connectors are analog outputs of the sources selected for the left and right speakers. See **Audio Source**, **Speaker Assign**, and **Mix Assign** functions for selection reference.

Figure 1–9 XLR Pin-Out



Technical Functional Overview

Figure 1–10 on page 23 and Figure 1–11 on page 24 illustrate the overall functionality of the VAM2 Series monitors.

Figure 1–10 VAMP2-SDA Block Diagram

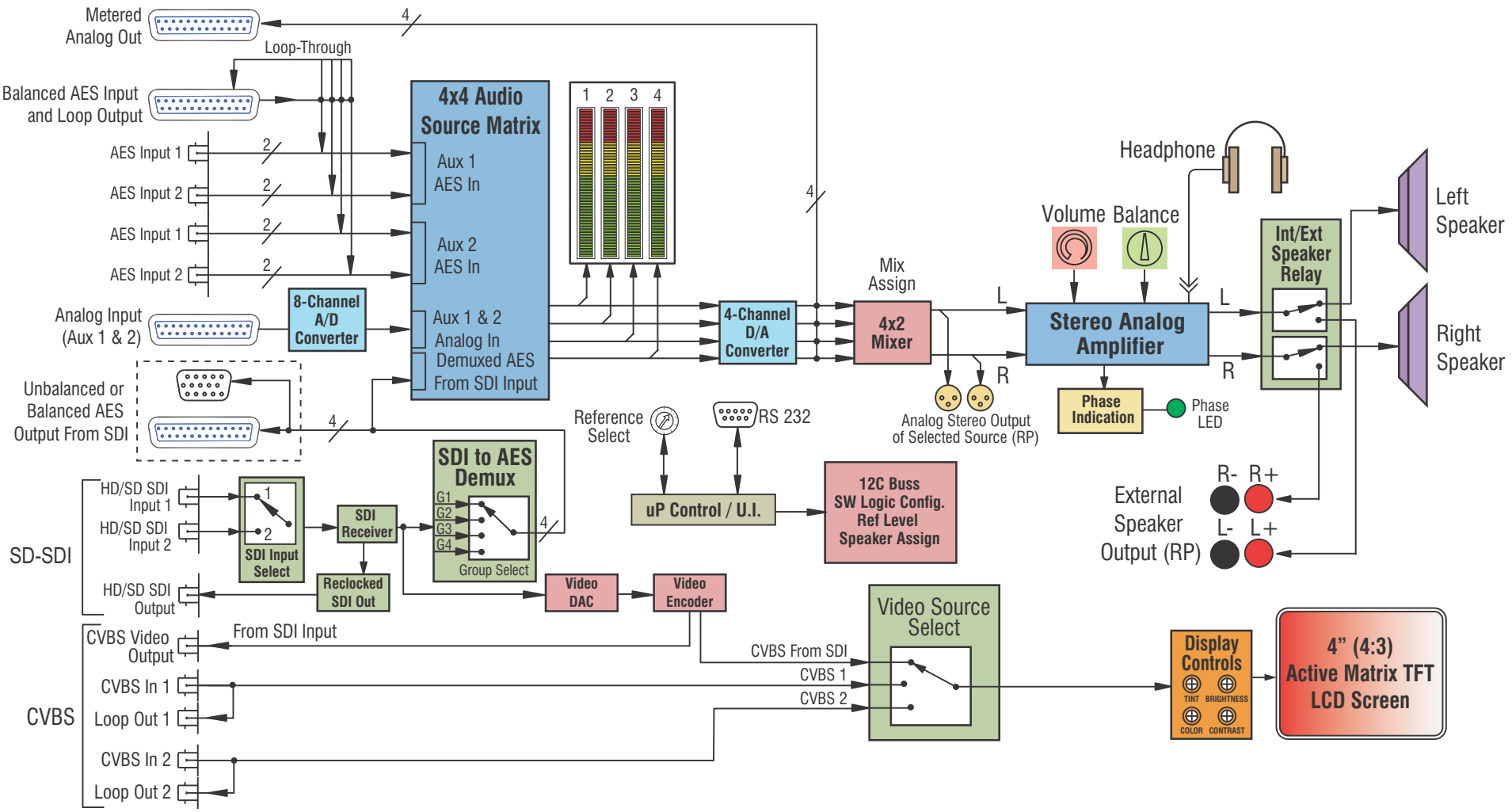


Figure 1–11 VAMP2 MDA Block Diagram