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World Leader of In-Rack, Audio, Video, Data Monitoring, and Closed Captioning Solutions

VAMP Series

- VAMP-1
- VAMP-24

2RU, Analog, Audio/Video Monitors with Level Meters

User Guide

Part Number 821014, Revision A

panorama®

the video division of Wohler

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Last Update

December 28, 2009

VAMP Series User Guide

Introduction

Overview

The VAMP Series monitors are complete, exceptionally high quality stereo audio/video 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 VAMP 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

The VAMP Series provides the ability to monitor both audio and video in a space-saving 2RU.

The built-in, color LCD screen offers simple confidence monitoring of video and has front panel controls fro brightness, chroma, tint (NTSC only) and contrast. The video section automatically detects and indicates the presence of NTSC or PAL signals.

53-segment high-resolution level meters are provided for visually monitoring all channels of the selected audio bank. The monitors also include phase indication LEDs for each metered channel pair. Any one or two of the four audio channels may be selected independently and sent to the left and/or right internal speakers or headphone output for audio monitoring.

Applications

The VAMP Series is ideally suited to provide high quality multi-channel 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
- 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
- Internal/external speaker select switch

Video

- Auto-detection of NTSC and PAL video formats with LED indicator

Physical and Electrical

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

Specifications

The VAMP Series monitors meet the specifications listed in Table 1–1 through Table 1–4 on page 8.

Table 1–1 Audio Specifications

Specification	VAMP-1	VAMP-24
Inputs	2 Analog on XLR	2 Banks of 4 Analog on Phoenix
Outputs	2 Analog Loop-Through on XLR	
Level Meters	53-segment high-resolution tri-color (red/yellow/green) LED bar graphs	
Level Meter Scale	+15 dB to -50 dB	
Level Meter Mid-scale Resolution	1 dB	
Level Meter Dynamics	VU and PPM, simultaneous	
Peak Acoustic Output: (@ 2 ft.)	100 dB SPL	
Output	11 W RMS (4 Ω), left and right, 20 W peak	
Analog Input Impedance	27k Ω balanced, minimum	
Analog Input Overload	+24 dBu balanced	
Analog Reference	+8, +6, +4, or 0 dBu	
Frequency Response (6th Octave)	80 Hz to 16 kHz, (± 7 dB -10 dB @ 50 Hz, 22 kHz)	170 Hz to 16 kHz (± 1 dB -10 dB @ 140 Hz, 20 kHz)
Hum and Noise	> 70 dB below full output	
Electrical Response	20 Hz to -20 kHz (± 1 dB)	
Electrical Distortion	< 0.1% 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	VAMP-1	VAMP-24
Inputs	1 CVBS on BNC	2 CVBS on BNC
Outputs	1 CVBS Loop on BNC	–
Video Formats	NTSC/PAL auto-detecting	
Signal Input Type	Composite Analog - 1V pk to pk	

Table 1–2 Video Specifications (Continued)

Specification	VAMP-1	VAMP-24
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	150 typical	
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	VAMP-1	VAMP-24
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	60 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 (89 x 483)	
Weight	15.125 lbs. (5.64 kg)	17 lbs. (7.7 kg)

Table 1–4 Level Meter Specifications

Specification	Values
Level Meter Type	Bar Graph
Segment Quantity	53
Level Meter Scale	+15 to -50 dB
Dynamic Range	65 dB
Mid-scale Resolution	1 dB
Bar Graph Length	2.22" (56.4 mm)
Indication Accuracy +10 to -30 dB -31 to -39 dB -40 to -50 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

Common Features

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

- **Phase Indicator** (Bi-Color Red/Green LED): The audio phase indicator shows the phase relationships between audio pairs. 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.

- **Audio 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. Level reference is +4 dBu. Dynamic range for these meters is 65 dB.

  Note: The VAMP-1 has two level meters and the VAMP-24 has four.

- **Balance Control** (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.

- **PAL/NTCS Indicator** (Green LED): This LED automatically glows green to indicate the presence of a PAL video input signal. The LED will not light up to indicate NTSC input signals.

- **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.

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

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

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

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

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

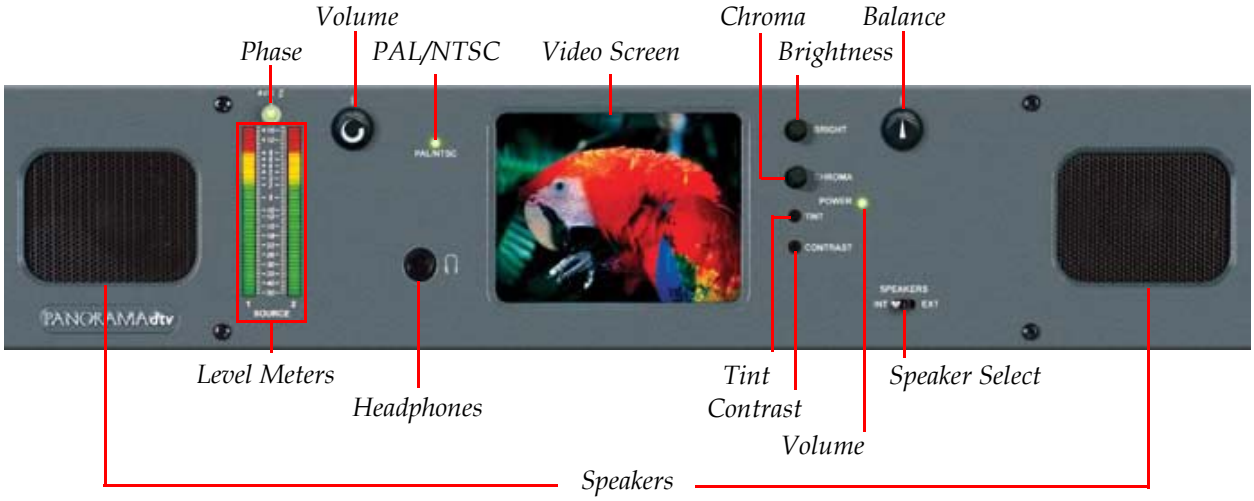
- **Power Indicator** (Green LED): This LED glows green to indicate that the monitor is connected to mains power and an operation voltage is present.

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

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

VAMP-1-Specific Features

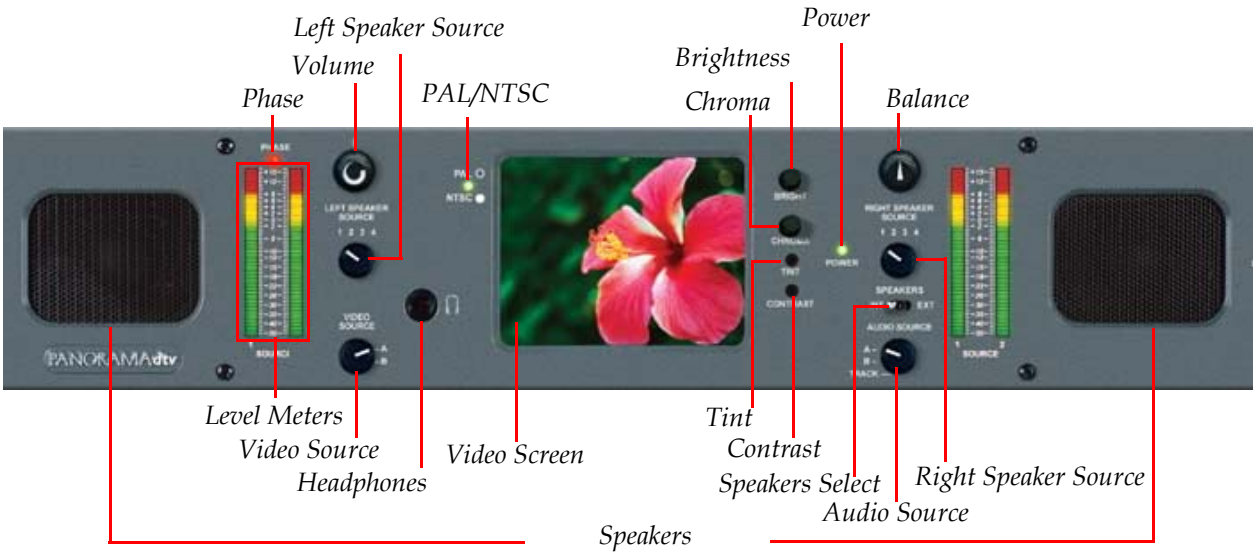
Figure 1–1 VAMP-1 Front Panel



The VAMP-1 is the base model in the VAMP Series. It monitors one composite video input and two analog audio inputs. It also provides PAL/NTSC auto-detection and indication.

VAMP-24-Specific Features

Figure 1–2 VAMP-24 Front Panel



- **Left/Right Speaker Source** (Two, Four-Position Rotary Switches): These switches select the audio channels to be monitored over the left and right speakers (or headphone). The left speaker source switch selects any one of four channels to monitor on the left speaker and the right source switch selects any one of four channels to monitor on the right speaker. These switches will only select from the four channels in one of the two banks (A or B) as determined by the audio source select switch described below.

- **Video Source** (Two-Position Rotary Switch): This switch selects one of two analog composite video signal sources input on the rear panel BNC connectors (A or B). The monitor automatically detects and configures for either PAL or NTSC signal sources. The audio source selection is independent of the video source selection unless it is set to the **Track** position where the audio source follows the video source selection.

- **Audio Source Select** (Two-Position Rotary Switch): This switch selects either Bank A or Bank B for monitoring. Each of the two banks contains four channels. Track position defers audio bank selection to the video source switch, linking the audio to the video.

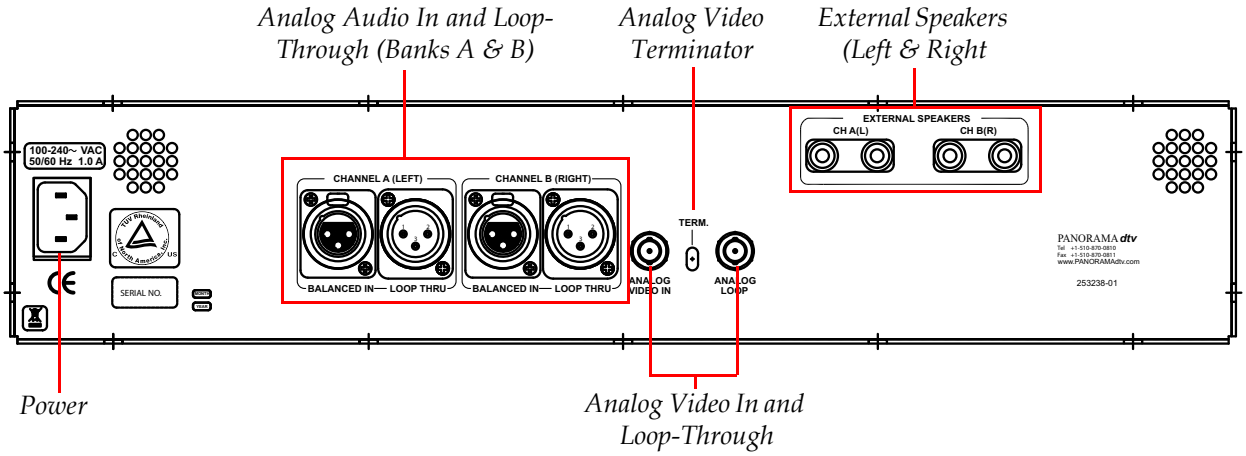
Rear Panel Connectors

Common Connectors

- **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.
- **External Speakers** (Speaker Binding Posts, Left and Right): Connect external speakers to these binding post terminals. The Channel A outputs the signals as selected for the left speaker and Channel B 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.
- **Analog Video I/O** (BNC): Connect standard composite analog video signals to these connectors. The loop-through connector (if any) passes the analog audio source input signal out to feed downstream equipment. The monitor will auto-detect PAL and NTSC signals and configure it for monitoring on the LCD video monitor.

VAMP-1-Specific Connectors

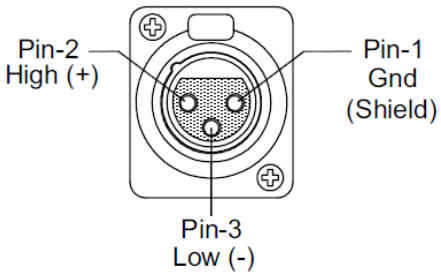
Figure 1–3 VAMP-1 Rear Panel



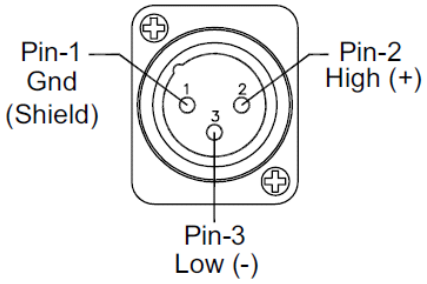
- **Analog Audio Loop-Through Output** (Three-Pin XLR-M): These connectors pass the analog audio source input signal out to feed downstream equipment. Each loop-through connector is physically located just to the right of the associated input. See Figure 1–4 below (right) for the pin-out.

- **Analog Audio In** (Three-Pin XLR-F, A and B): Connect analog audio signals into one or both of these balanced input XLR three-pin female connectors. Channel A will be monitored by the left internal (or external) speaker and the Source 1 (left) bar graph meter. Channel B will be monitored by the right internal (or external) speaker and the Source 1 (right) bar graph meter. The phase indicator LED determines the phase relationships between Channel A and B input sources. See Figure 1–4 below (left) for the pin-out.

Figure 1–4 Three-Pin XLR Pin-Outs



Audio Input (Female)



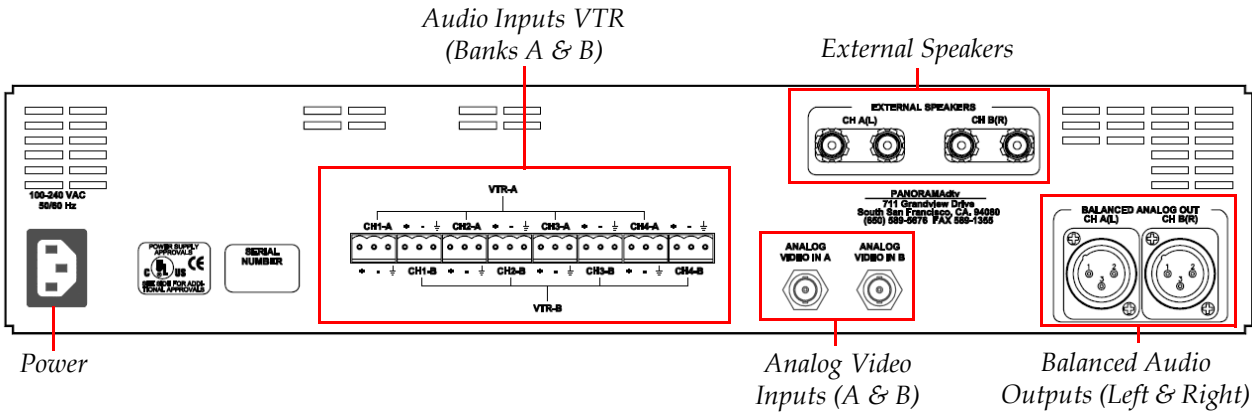
Audio Loop-Through Output (Male)

- **Video Input Termination Setting** (Two-Position Toggle Switch): When using the video loop-through connector (or an external "T" adaptor) to pass source signals to feed downstream equipment, you must set the termination toggle switch to unterminated (down).

  Note: Older models of the VAMP-1 do not include a video input termination setting.

VAMP-24-Specific Connectors

Figure 1–5 VAMP-24 Rear Panel



- **Audio Inputs VTR** (Phoenix Connectors, Banks A and B): Connect up to eight channels of analog signals from a VTR or other source. The four VTR-A (Bank A) connectors are interleaved with the four VTR-B (Bank B) connectors. If the audio source select switch on the front panel is set to "A," then the four VTR-A channels will be available for selection for monitoring through the speakers (or headphones) through the left and right speaker source select switches on the front panel; likewise if the audio source select switch is set to "B." Also with either of these settings, all four channels of the selected bank will be simultaneously displayed on the level meters. Connector pin-out is silk-screened below each of the VTR connectors. Audio source selection is independent of the video source selection unless the **Audio Source** switch is set to the **Track** position.

- Balanced Analog Out (Three-Pin XLR-M): These connectors provide a line level output pair that replicates the speaker outputs, unaffected by **Volume** or **Balance** controls.

Technical Functional Overview

Figure 1–6 on page 15 and Figure 1–7 on page 16 illustrate the overall functionality of the VAMP Series monitors.

Figure 1–6 VAMP-1 Block Diagram

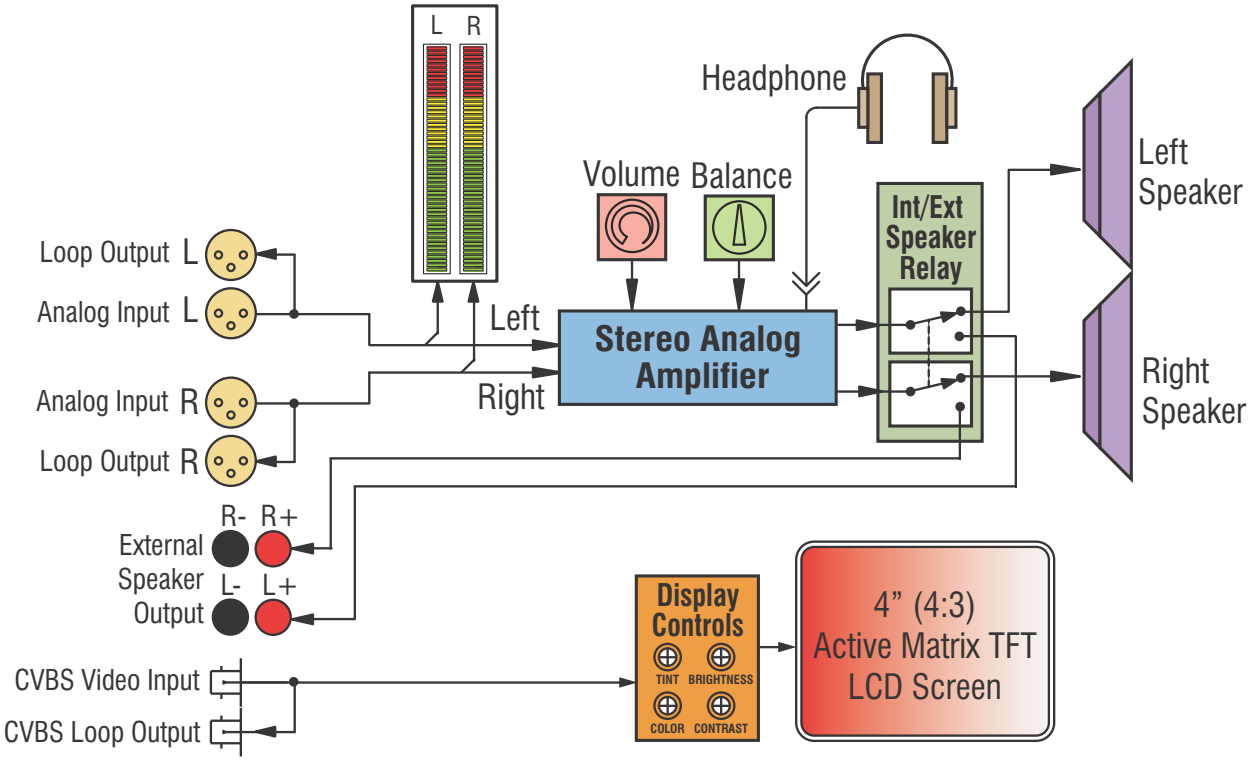


Figure 1–7 VAMP-24 Block Diagram