



VAMP-AC3

Audio/Video Monitor

6-Channel Digital Audio w/Two AC-3/AES Audio
Inputs and One Loop-Through, One Video input
w/Loop-Through, LCD Monitor, Six 53-Segment
High-Res Level Meters, and Phase Indication

Document P/N 821522 Rev-B

User Manual

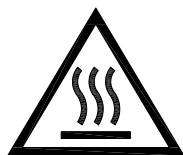
CONTENTS

<u>Title and Contents</u>	1
Introduction	2
<u>Section 1: Features and Specifications</u>	3
General Description and Features	4
Applications and Specifications	5
<u>Section 2: Operation</u>	7
Installation	9
Front Panel Features	10
Rear Panel Features	14
<u>Section 3: Technical Information</u>	19
Level Meters	20
Interconnect Block Diagram	22

Important Safety Instructions

- 1) Read these instructions.
- 2) Keep these instructions.
- 3) Heed all warnings.
- 4) Follow all instructions.
- 5) Do not use this apparatus near water.
- 6) Clean only with dry cloth.
- 7) Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
- 8) Do not install near any heat source such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- 9) Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
- 10) Protect the power cord from being walked on or pinched, particularly at plugs convenience receptacles and the point where they exit from the apparatus.
- 11) Only use attachments/accessories specified by the manufacturer.
- 12) Use only with the cart stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
- 13) Unplug this apparatus during lightning storms or when unused for long periods of time.
- 14) Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as when power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
- 15) Do not expose this apparatus to rain or moisture.
- 16) The apparatus shall be connected to a mains socket outlet with a protective earthing connection.

CAUTION!



In products featuring an audio amplifier and speakers, the surface at the side of the unit, where the audio amplifier heat sink is internally attached, may get very hot after extended operation. When operating the unit exercise caution when touching this surface and ensure that external materials which may be adversely affected by heat are not in contact with it. There is a Hot Surface label (see diagram) attached to the aforementioned surface of the product.

Introduction

Congratulations on your selection of a Wohler Technologies product. We are confident it represents the best performance and value available, and we guarantee your satisfaction with it.

If you have questions or comments you may contact us at:

Wohler Technologies, Inc.

31055 Huntwood Avenue

Hayward, CA 94544

Phone: (510) 870-0810 Fax: (510) 870-0811

US Toll-Free: 1-888-596-4537

www.wohler.com **support@wohler.com**

Section 1

General Features and Specifications

Description

Features

Applications

Specifications

Dolby is a trademark of Dolby Laboratories, and licensor of technology used in this product. For more information concerning Dolby Digital and AC-3, please contact Dolby Laboratories directly at info@dolby.com, or Dolby Laboratories, Inc., 100 Potrero Ave., San Francisco, CA 94103, phone: (415) 558-0200.



VAMP-AC3

AC-3/AES Digital Audio/Analog Video Monitor



VAMP-AC3 Front Panel

Description

The VAMP-AC3 is a powered stereo audio/video monitor designed specifically for simultaneous monitoring of composite analog video and the six digital audio channels associated with ATSC/DVB (AC-3/Dolby Digital®) programming.

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

The VAMP-AC3 accepts AC-3 (Dolby Digital®) and/or AES/EBU (PCM) audio input signals providing capabilities to handle monitoring requirements throughout the facility. Indicator LEDs are provided on the front panel to identify the selected source as being AC-3 or AES. A toggle switch and LED are also provided to indicate and allow selection between two AC-3 Pro-16 signals, if they are present. High-resolution, wide-range LED bargraph level meters are provided for all six channels. The 53 bicolor segments, spanning a range of 65 or 90 dB, simultaneously display signal levels according to both the PPM and VU standards. An adjustable-duration hold of the peak PPM value may also be displayed as a special option. Bargraph brightness is adjustable via a trim pot.

Both Left/Right and Front/Surround "Phase"/Polarity LED indicators are provided to alert of possible phase cancellation from mixdown in any likely playback situation.

To isolate possible faults, rotary switches let the operator route any one or pair of inputs to left and right speaker channels for acoustic monitoring. A toggle switch is provided, which mixes all six channels down to two for listening to all channels at once and LEDs are provided to indicate this selection.

Features

- 4" Color LCD Video Screen with Brightness, Chroma, Tint (NTSC Only), and Contrast Controls
- Auto Detection of NTSC/PAL Signals with NTSC/PAL Indication LED
- AES/EBU, or encoded ATSC/MPEG-2 (Dolby Digital®)
- Six High-Resolution 53-Segment Tri-Color LED Bargraph Meters
- Left/Right front "phase" indicators
- Select any channel or pair of channels for isolated listening, or a stereo mixdown of all 6 channels
- Audio Inputs: Two AC-3/EBU inputs on BNC connectors (with one loop-through) and two XLR connectors (with one loop-through).
- Video Inputs: One Composite Video Input On BNC Connector with Loop-Through
- Self-Powered Speaker System
- Headphone Jack (mutes speakers)
- Line-Level Analog Output of Selected Sources on XLR Connectors

Applications

The VAMP-AC3 is intended for use in machine rooms, edit bays, or wherever compact on-the-spot confidence monitoring of video and six-channel digital audio is required. Thorough magnetic shielding (less than 1 Gauss at any surface) allows installation of the unit immediately adjacent to video monitors.

Designed, built, and rigorously tested in the U.S., the VAMP-AC3 monitor is backed by a strong two year warranty and a "satisfaction guaranteed" return policy.

Digital Input Specifications

Input characteristics: BNC: 75 Ω (ohm) unbalanced
XLR: 110 Ω (ohm) balanced

Minimum input level: 250 mv

Conversion data width: 20 bit

Dynamic range: 95 dB

Frequency Response: 10 Hz - 20 kHz +/- 0.5 dB

Analog Output

Distortion: < 0.005%

Analog outputs: balanced, line-level (20 dbfs=
+4 dBu)

Meter input '0' level: -20 dBfs

Video Specifications

Video Input: One Composite Analog - 1V peak
to peak - NTSC/PAL Auto-sensing

Display Resolution: 480H x 230V

Screen Type, Size: TFT 4" Diagonal

Video Controls: Brightness, Chroma, Tint (NTSC
only), and Contrast

General Specifications

Peak Acoustic Output: 100 dB SPL (@ 2 ft.)

Electrical Response: 20Hz -20kHz (+/- 1 dB)

Acoustic Response,

6th Octave: 170 Hz - 16 kHz (+/- 1 dB)
(-10 dB @ 140 Hz, 20 kHz)

Amp Power Output: 20W Transient / 11W Continuous RMS
each side (4 ohm)

Distortion (electrical): Less than 0.1% at any level below Limit
Threshold

Distortion (acoustic): Typically less than 1.5% at frequencies
above 200 Hz; 6% or less at worst case

Hum and Noise: More than 70 dB below full output

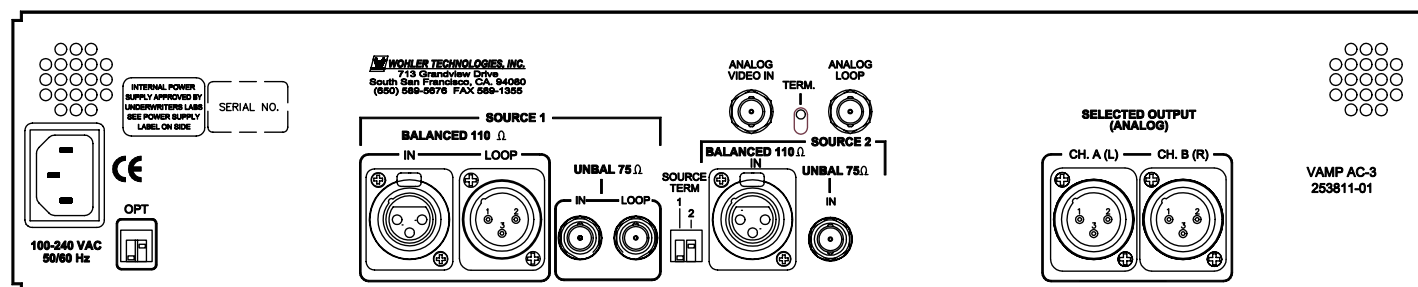
Level Meters: Six 53-segment high-resolution tri-color
(red/yellow/green) LED bargraphs

Power Requirement: 100/250-VAC, 50/60 Hz Auto Select

Power Consumption: 60W

Dimensions (HxWxD): 3.5 x 19 x 12 inches (89 x 483 x 298 mm)

Weight: 17 lbs. Approximately (7.7 kg)



VAMP-AC3 Rear Panel

Units are certified to meet, at time of manufacture, all currently applicable product safety and EMC requirements, such as those of UL and CE. 0 dBV ref. 0.775V RMS. Features and specifications subject to improvement without notice.



Section 2

Operation

Installation

Front Panel Features

Rear Panel Features

Installation

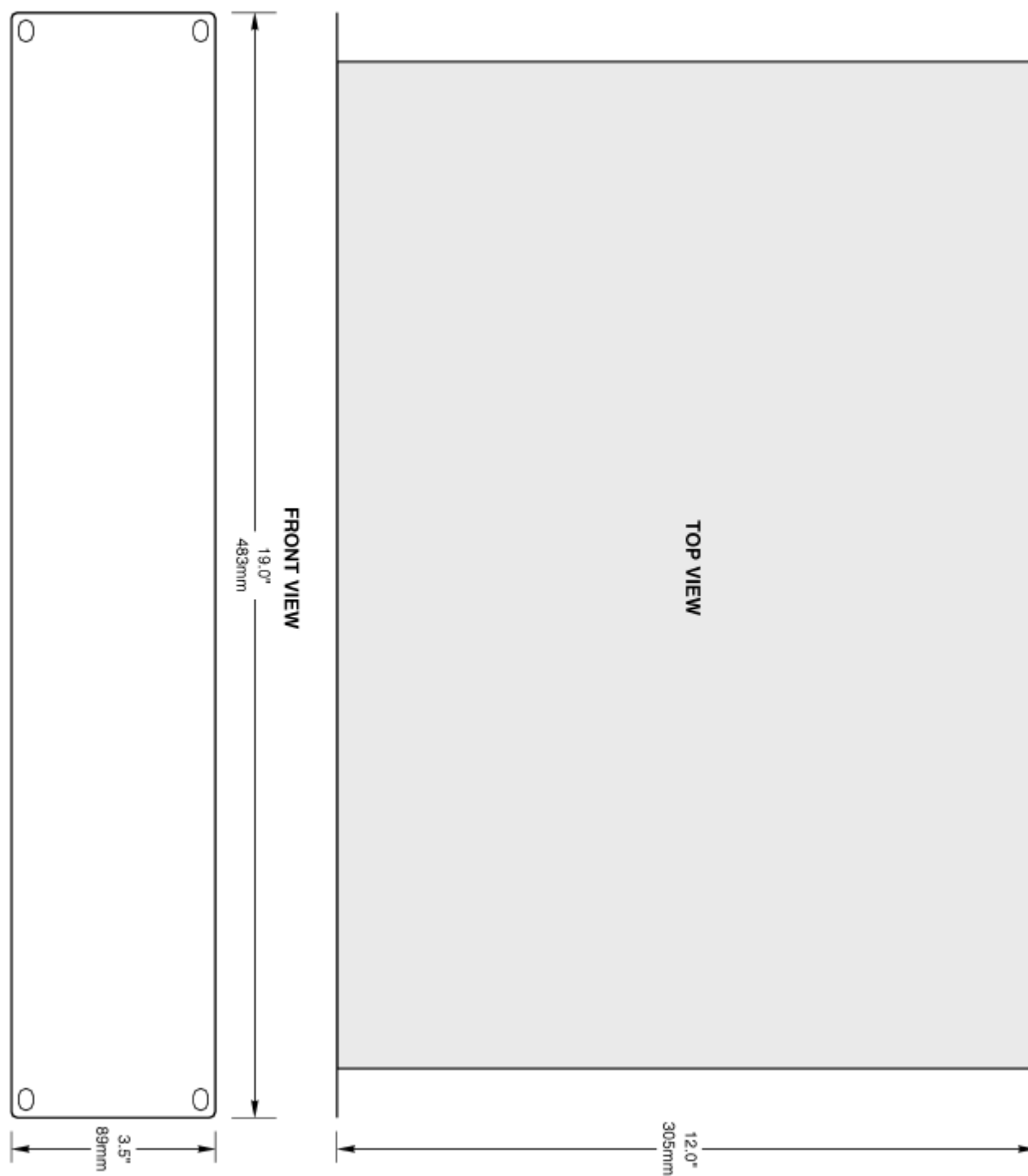


Figure-2a: VAMP-AC3 Rack Mount Dimensions

Installation

Unpacking

Unpack the VAMP-AC3 from the shipping container and inspect all articles for shipping damage. If you find any damage, notify the shipping carrier immediately for claims adjustments.

Compare the shipping box contents to the packing slip. Contact a Wohler sales representative if there are any unexplained shortages.

Power Requirements

The VAMP-AC3 is equipped with a world standard power supply that is capable of operating on 90-264 VAC @ 50-60 Hz. Power consumption is 60 watts, maximum. The green Power LED in the front panel center glows green to indicate the VAMP-AC3 is connected to mains power and an operating voltage is present.

Cooling and Airflow

It is recommended that you allow a 1RU (1.75"/25mm) space above and below the unit for air circulation.

Rack Mounting

The VAMP-AC3 rack mounts in a standard EIA-310-D specification 19"/483mm rack and needs 2RU (3.5"/88.9mm) of space. (See Figure-2a, facing page, for unit dimensions.) Allow sufficient space at the unit rear for connector and cable clearance (approximately 4"/102 mm). The VAMP-AC3 weighs approximately 17 pounds (7.7 kg) and rack mounts from the front panel support rails. Rear support is not required.

LCD Monitor Viewing Position: To obtain the best operator's viewing angle, mount the VAMP-AC3 as nearly "straight on" to the operator's position as possible (0 degrees left/right or up/down). Good image quality is assured if viewing angles are between +/- 45 degrees from the center axis in the horizontal plane (left/right). In the vertical axis, good image quality is obtained between 10 degrees looking down and 30 degrees looking up. Due to the nature of LCD's, there are certain anomalies, which can cause the displayed video to appear incorrect. If the viewer is outside the optimal LCD display viewing range, the contrast ratio, brightness, and color saturation will not be or may not appear to be, a true representation of the displayed video. Additional anomalies such as loss of resolution, apparent reversed video effect, and frame/field strobe effect with the CCFT backlight may also be observed. The LCD used in the VAMP-AC3 is optimized for viewing from the 12 o'clock position. That is from approximately eye height and upwards. Typically, the VAMP-AC3 is mounted at eye height and viewed by looking straight into the display. Going beyond the specified viewing area can cause anomalies as mentioned above.

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 with most LCD's currently on the market.

General Installation Recommendations

Recommended cable type for analog **video** signals is: **Belden 8281, Belden 1694A**, or equivalent.

Recommended cable type for digital **audio** signals is: **Belden 1800B** or equivalent.

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

Front Panel Features

Please refer to Figure-2b on the following page to familiarize yourself with the front panel features of the VAMP-AC3 unit. The following sections describe these features and are referenced, by number, to Figure-2b.

1 **Speakers - Left and Right**

The speaker system is comprised of two mid-range speakers (left and right).

2 **Selector Disabled Indicators (Left and Right) - Red LEDs**

These red LEDs (left and right) glow red to indicate that the left and right Speaker Select switches (Item 3) are disabled because the ALL/SELECTED toggle switch (Item 5) is set to the “ALL” position.

3 **Speaker Select (Left and Right) - 6-Position Rotary Switches**

These six position rotary switches allow you to isolate and monitor any one of the six possible channels independantly through the left and right speakers. Simply choose positions 1 - 6 for either the left or right speaker and the chosen channel will be monitored from the respective speaker. **Note:** This function is disabled if the ALL/SELECTED Channel select switch (Item 5) is in the “ALL” position.

4 **Level Meters (Audio) - 53-Segment Bargraph displays**

Audio levels for source channels 1-6 are displayed via six high resolution 53-segment LED bargraph meters (three on the left side of the front panel; three on the right side). Dynamic range for these meters is 65 dB and they are able to display signal levels using both PPM and VU standards. Each meter is labeled according to the standard Surround Sound nomenclature (left front, right front, center, low frequency effects, left surround, and right surround).

Contact the factory for additional meter information concerning meter scales and ballistics.

5 **ALL/SELECTED Channel Select - 2-Position Toggle Switch**

When this 2-position toggle switch is in the “ALL” position, a stereo mixdown of the five full channels is applied to the speaker amps (the LFE channel is excluded) and the left and right Speaker Select switches (Item 3) will be disabled (the Selector Disabled Indicator LEDs, Item 2, will also glow red). When in the “SELECTED” position, channel selection defaults to the left and right Speaker Select switches (the Selector Disabled Indicator LEDs will be unlit).

6 **Pro-16 Select and Indicator - 2-Position Toggle Switch/Amber LED**

In the event that you are processing two different Dolby Digital Pro-16 data streams it is possible to select between the two with this toggle switch (1 or 2). The amber LED above the switch will glow if such signals are present. In the absence of such data streams, the LED will be unlit and the switch will be nonfunctional.

7 **LCD Monitor Screen - TFT**

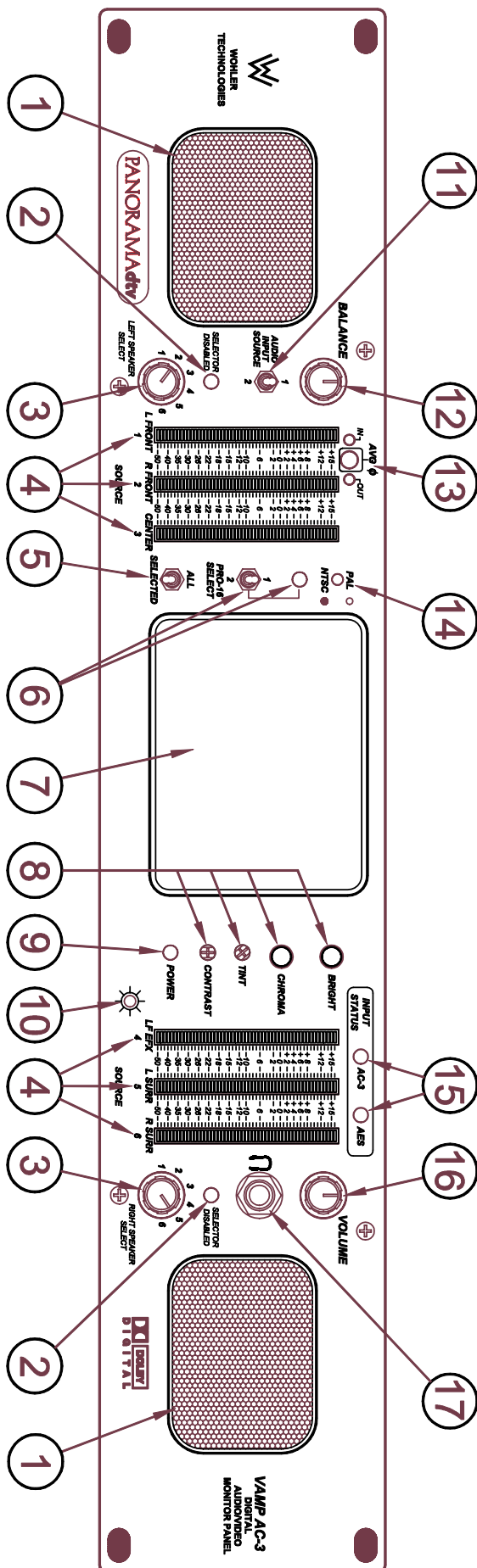
View input video sources here. Screen image parameters are adjustable by four manual controls (Item 8).

8 **LCD Monitor Display Controls - Rotary Pots**

Adjust the LCD monitor image with these four controls:

- **BRIGHT:** Brightness; adjust this knob for desired screen brightness.
- **CHROMA:** Color Saturation; adjust this knob for desired amount of image color saturation.
- **TINT:** Tint; adjust this trim pot for desired image color hue (NTCS only).
- **CONTRAST:** Contrast; adjust this trim pot for desired image scene dark-to-bright contrast.

(Continued)

**Figure-2b: VAMP-AC3 Front Panel Features**

Front Panel Features

(Continued)

9 **Power Indicator - Green LED**

This LED signals the operating condition of the power supply; it glows green to indicate the VAMP-AC3 is connected to mains power and an operation voltage is present.

10 **Brightness Control (Level Meters) - Recessed Trim Pot**

This trim pot simultaneously adjusts the brightness of all the bargraph meters. Turning the trim pot clockwise increases the brightness. You must use a small flathead screwdriver or similar tool to adjust this control.

11 **Input Source Select - 2-Position Toggle Switch**

This two position toggle switch allows the operator to choose between two AC-3/AES input sources; Input Source 1 or Input Source 2. See items C, D, F, and G on pages 14-16 for information on these inputs.

12 **Balance Control - Rotary Pot**

This pans the volume balance between the left and right speakers (or headphone). If the balance is adjusted hard right, a slight left/right channel mix is retained so that phase discrepancies may be discerned.

13 **Phase Indicator - Green, Green/Red, and Amber LEDs**

The phase indication LEDs offer instant verification of phase (polarity) relationships in stereo or mono sources in the Right-Front and Left-Front channels. There are three LEDs; the two smaller LEDs on either side show instantaneous phase relationships in the signals, while the center (and larger) LED will indicate the *average* phase condition. The left side, or in-phase, LED glows (or blinks) green when signals are in phase. The right side, or out-of-phase, LED glows (or blinks) amber for out-of-phase signals. The center LED indicates the average phase condition by glowing green for in-phase conditions, or red for out-of-phase conditions. In general, it is sufficient to regard the center LED (average phase condition) as adequate for proper phase monitoring. While it is normal for stereo signals to contain some intermittent instantaneous out-of-phase and in-phase conditions (small LEDs), a steady red glow of the larger center LED almost always indicates an out-of-phase alarm condition.

14 **PAL/NTSC Signal Type Detection - Green LED**

This LED will glow green to indicate that the video input signal is of the PAL type. To indicate that the signal is of the NTSC type the LED will *not* light up. This signal type detection is automatic.

15 **Input Status Indicators - Green LEDs**

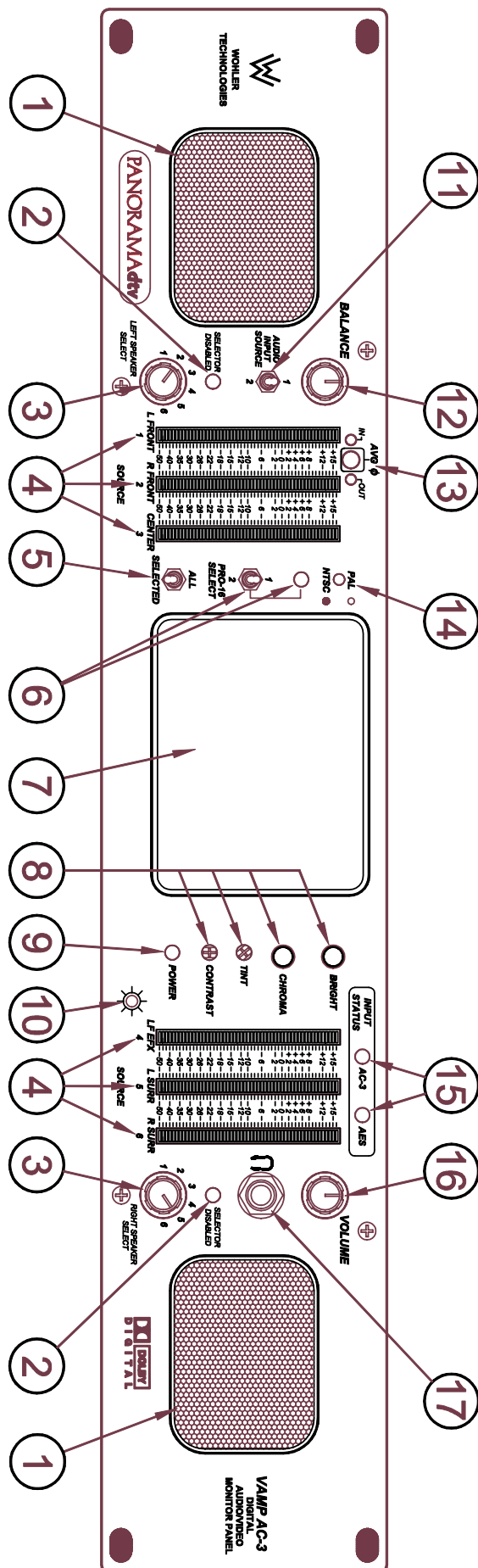
These two green LEDs indicate which kind of signal is being received at the selected input; either the left LED for AC-3 (Dolby Digital®) or right LED for AES (or standard PCM; Pulse Code Modulation).

16 **Volume Control - Rotary Pot**

This controls the loudness of the audio reproduced by the internal speakers or connected headphone.

17 **Headphone Jack - 1/4" Phone Connector**

Select the headphone audio sources as you would for the internal speakers. When you plug in headphones, the internal speakers will mute. This jack accepts the standard 1/4" phone type stereo plug.

**Figure-2b: VAMP-AC3 Front Panel Features**

Rear Panel Features

Please refer to Figure-2c on the following page to familiarize yourself with the rear panel features of the VAMP-AC3 unit. The following sections describe these features and are referenced, by letter, to Figure-2c.

A Power - IEC-320 Connector

Attach a standard IEC-320 power cord between this connector and mains power. The front panel Power LED (Item 8) will glow green to indicate that an operating voltage is present.

B Options - 2-Position DIP Switch

This DIP switch is reserved for possible options still to be determined. You may disregard its settings.

C Source 1 Input (Balanced) - XLR Connectors* (IN and Loop-through)

IN: This female 3-pin XLR connector is meant to receive either an AC-3 (Dolby Digital®) or standard AES (PCM) signal and is configured for a balanced, 110 Ohm connection. Select this input for monitoring by setting the Source Select switch (Item 11) on the front panel to "1".

LOOP-THROUGH: This male 3-pin XLR connector outputs a copy of the signal entering the input and is not affected by the front panel controls or headphone mute.

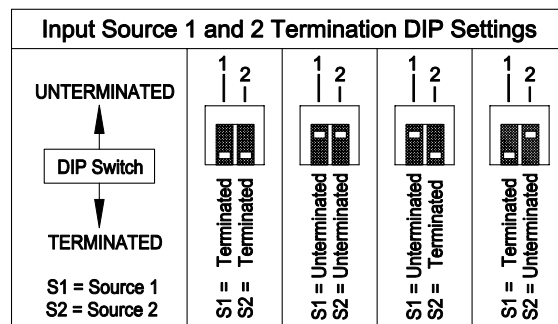
D Source 1 Input (Unbalanced) - BNC Connectors* (IN and Loop-through)

IN: This female BNC connector is meant to receive either an AC-3 (Dolby Digital®) or standard AES (PCM) signal and is configured for an unbalanced, 75 Ohm connection. Select this input for monitoring by setting the Source Select switch (Item 11) on the front panel to "1".

LOOP-THROUGH: This female BNC connector outputs a copy of the signal entering the input and is not affected by the front panel controls or headphone mute.

E Termination Settings (Source 1 and 2) - 2-Position DIP Switch

This DIP switch sets the termination characteristics of the Source 1 and Source 2 inputs. There are two switches; one for the Source 1 input (S1), and a second switch for the Source 2 input (S2). If input signals are fed to downstream equipment using the Source 1 loop-through connectors *or* "T" connectors from Source 1 or 2, then the respective DIP switch of the source feeding the downstream equipment must be set to unterminated (UP). If there is no connection to downstream equipment, then the respective DIP switch section should be set to terminated (DOWN). See the illustration below for DIP switch settings.

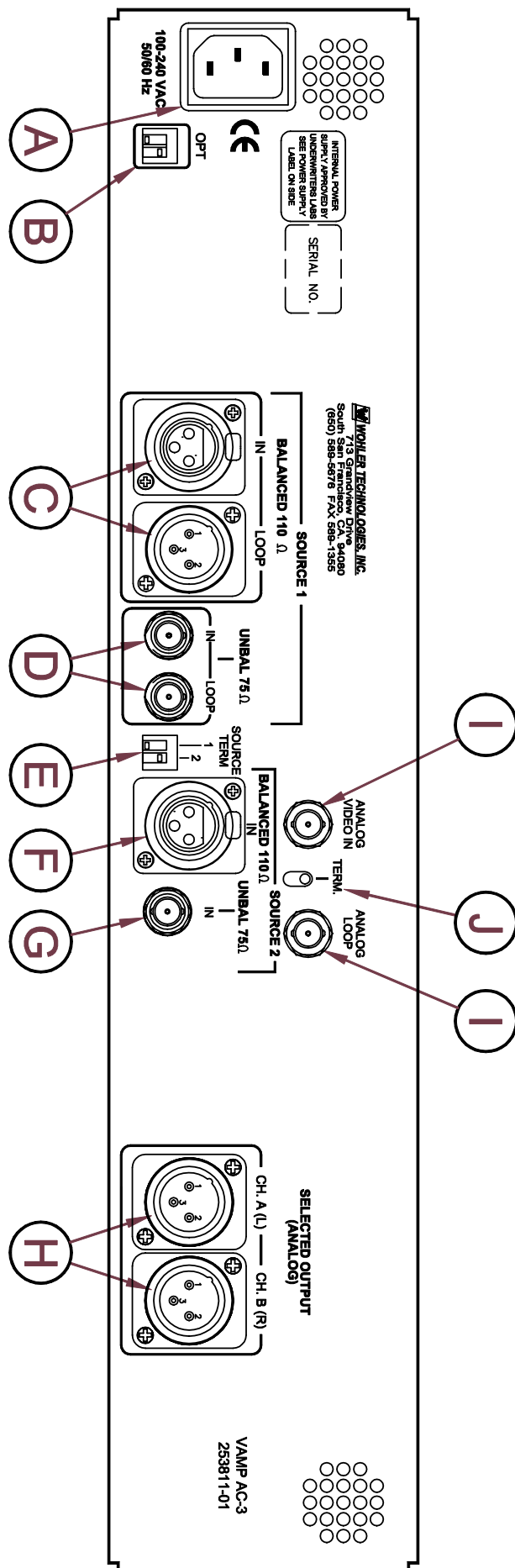


F Source 2 Input (Balanced) - XLR Connector*

This female 3-pin XLR connector is meant to receive either an AC-3 (Dolby Digital®) or standard AES (PCM) signal and is configured for a balanced, 110 Ohm connection. Select this input for monitoring by setting the Source Select switch (Item 11) on the front panel to "2".

(Continued)

*You cannot connect two different digital audio signals simultaneously to the balanced (XLR) and unbalanced (BNC) input connectors in the same input section.

**Figure-2c: VAMP-AC3 Rear Panel Features**

Rear Panel Features

(Continued)

G Source 2 Input (Unbalanced) -BNC Connector*

This female BNC connector is meant to receive either an AC-3 (Dolby Digital®) or standard AES (PCM) signal and is configured for an unbalanced, 75 Ohm connection. Select this input for monitoring by setting the Source Select switch (Item 11) on the front panel to "2".

H Selected Output (Analog) - XLR Connectors

These two 3-pin male XLR connectors (left and right) respectively output balanced line-level analog signals of the monitored audio as selected for the left and right internal speakers or headphone. However, this output is not affected by the balance (Item 12) and volume (Item 16) controls. See Items 2, 3, 5, 6, and 11 for source selection parameters.

I Video Input and Loop-Through - Analog - BNC Connectors

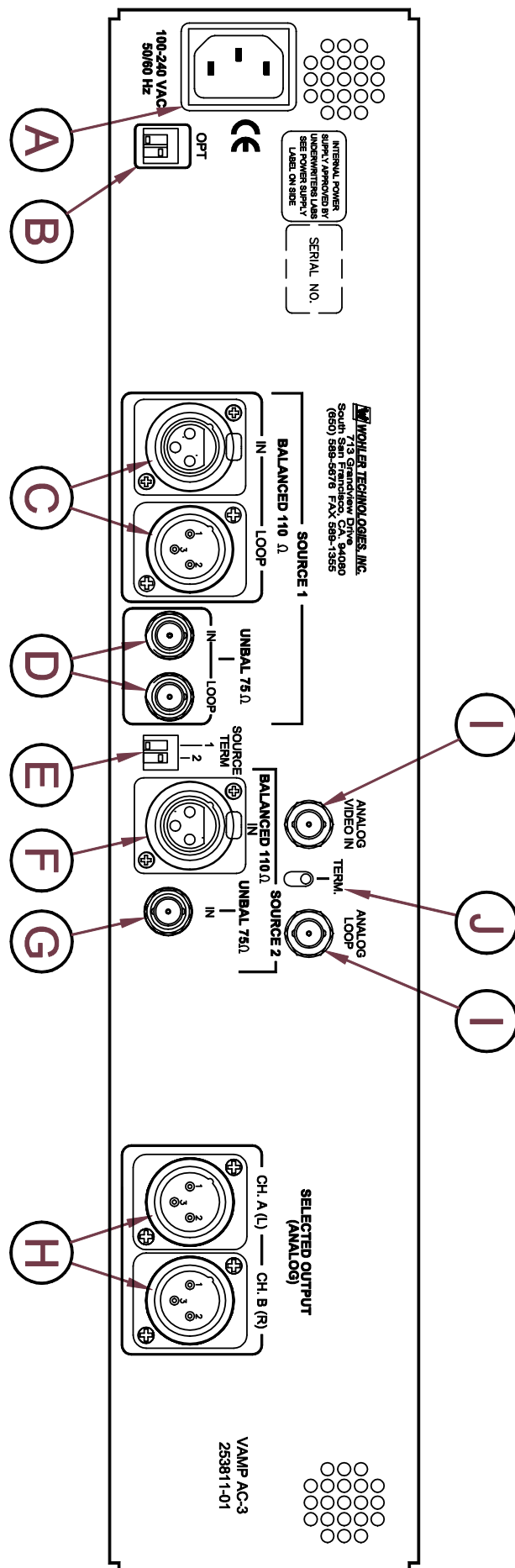
ANALOG AUDIO IN: Connect standard composite analog video signals here. PAL and NTSC video signals are automatically detected and configured for monitoring.

ANALOG LOOP: This connector passes the video input source signal to feed downstream equipment. See Item J for setting termination.

J Video Input Termination Setting - 2-Position Toggle Switch

When using the Video Loop-through connector (or an external "T" adaptor) to pass video source signals to feed downstream equipment, you must set the termination toggle switch to Unterminated (DOWN). When there is no connection to downstream equipment, set this switch to Terminated (UP).

*You cannot connect two different digital audio signals simultaneously to the balanced (XLR) and unbalanced (BNC) input connectors in the same input section.

**Figure-2c: VAMP-AC3 Rear Panel Features**

Section 3

Technical Information

Level Meters

Phase Indication

Interconnect Block Diagram

Level Meters

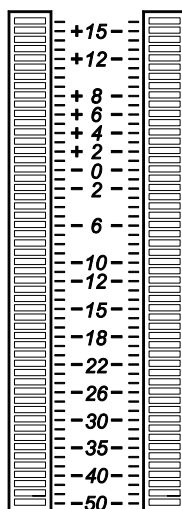
Description

The 53-segment type of tri-color LED bargraph display has a total length of 2.24" (56.8 mm) and uses relatively small segments. This high resolution segment size is easy to accurately monitor, visually, for distances up to six feet (1.8 meters). Segment size is 0.158" (4 mm) x 0.04" (1 mm). Segment pitch is .039" (0.99 mm).

Each LED bargraph display section visually indicates the dynamic changes within the audio signal source(s) being monitored. All bargraph LED segments are of the tri-color type (green, amber, red). Ballistics for these meters are factory set to display a single floating PPM 'dot' (continuous decay of 20 dB in 1.5 seconds) above a VU bar; each segment's color being fixed according to its position on the scale. Level gain is factory set at +4 dBu. Dynamic range for these 53-segment meters is 65 dB.

Scales

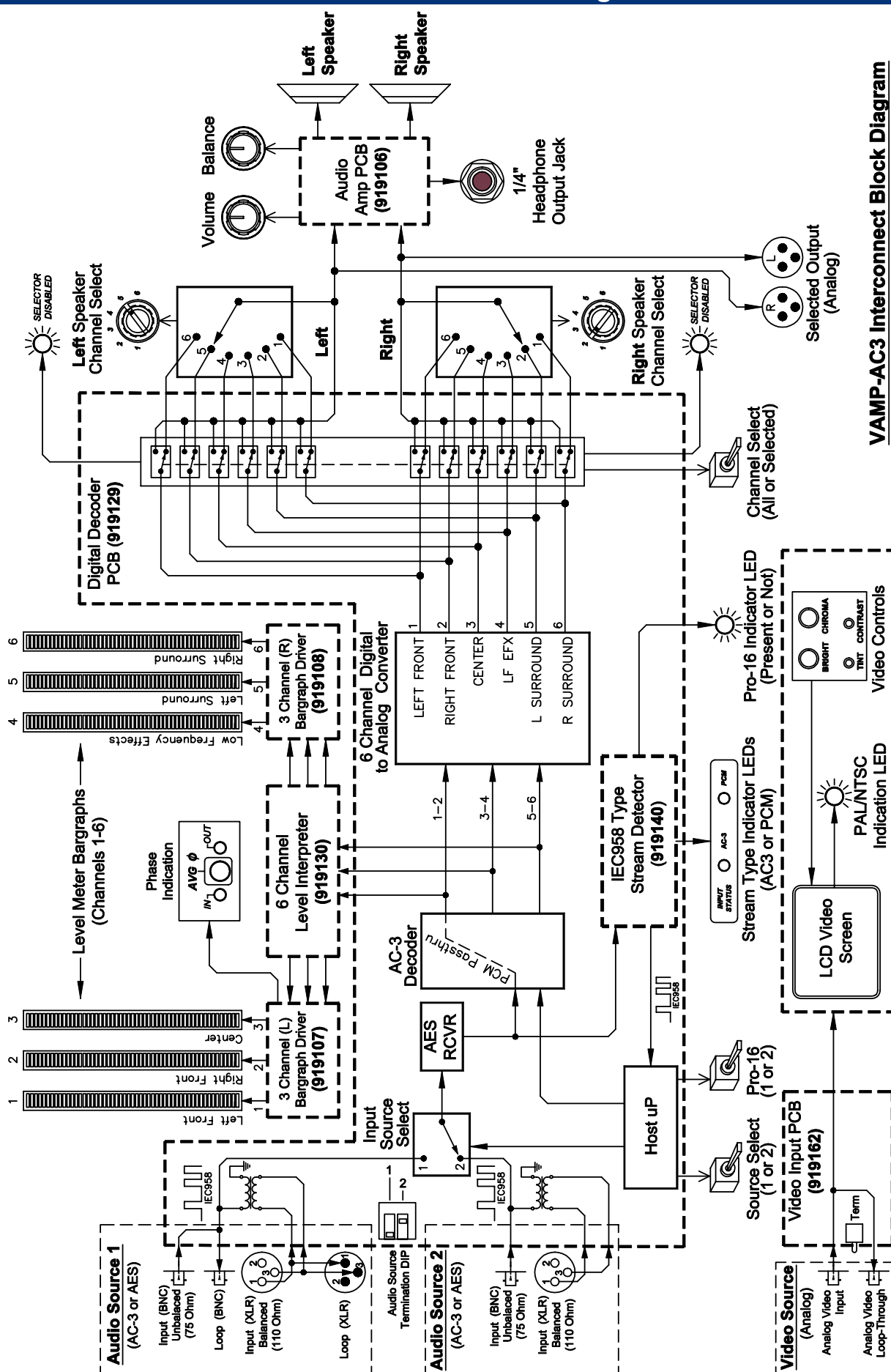
Please refer to the figure below for an illustration showing the standard scale for the 53-segment bargraph display used in the VAMP-AC3 audio/video monitors. Custom variations of this scale are also available on special order.



53-Segment LED Bargraph Specifications

Dynamic range, dB:	65 dB
Midscale resolution:	1 dB
Segment Quantity:	53
Segment size:	0.158" (4 mm) x 0.04" (1 mm)
Segment pitch:	0.039" (.99 mm)

VAMP-AC3 Interconnect Diagram



VAMP-AC3 Interconnect Block Diagram



Wohler Technologies, Inc.

31055 Huntwood Avenue

Hayward, CA 94544

Phone: (510) 870-0810 Fax: (510) 870-0811

US Toll-Free: 1-888-596-4537

www.wohler.com support@wohler.com