



ALM53 Series

2U Audio Level Meter Alarm Monitor

Analog or Digital Inputs, Up To Twenty-Four Channels, Loss-of-Audio/Clipping/Phase Monitoring, with Audible and Visual Alarm and 53-Segment High-Resolution Level Meters

Document P/N 821537 Rev-A

User Manual

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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:

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Section 1

General Features and Specifications

Description

Features

Applications

Specifications

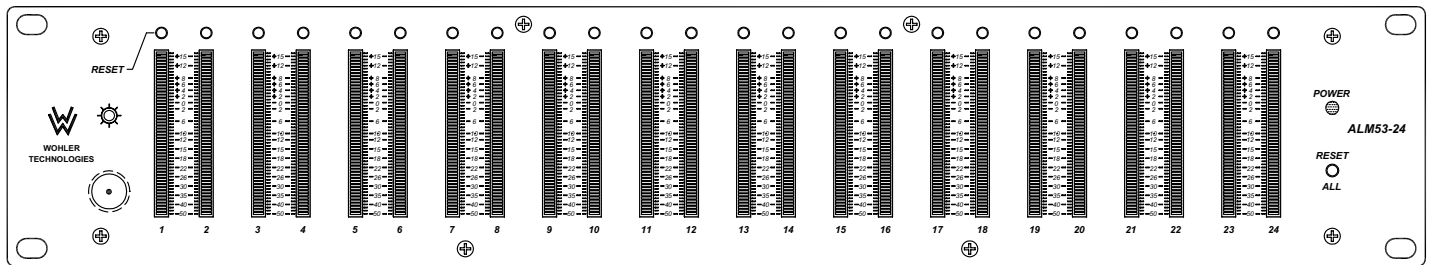
Standard Models

Other Options

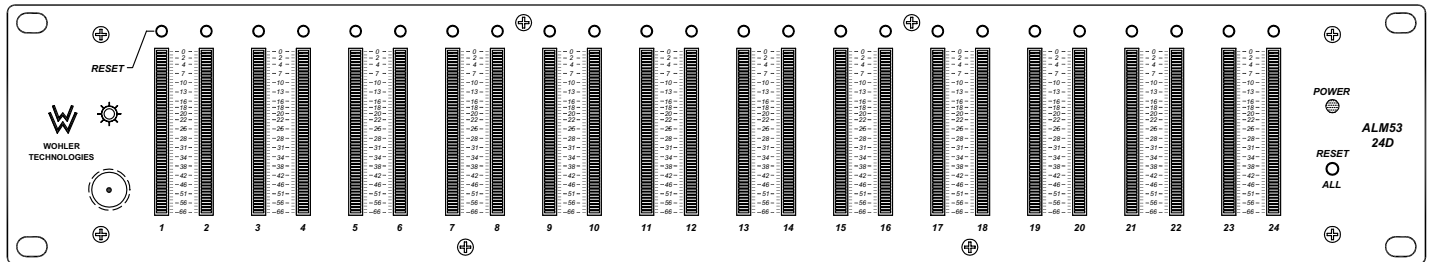


ALM53 Series

2U Audio Level Meter Alarm Monitor



ALM53-24Ax/x Front Panel



ALM53-24Dx/x Front Panel

Description

The Wohler **ALM53** Series systems provide audio level metering and audible and visual alarms for loss of audio, over-range (clipping), and phase/polarity reversal. When a fault condition occurs, it activates individual channel level meter LED behavior and sets off a mutable acoustic alarm. It also energizes a rear-panel relay contact closure(s) for remote alarm.

High-resolution 53-segment tri-color LED bargraph display level meters provide a choice of VU and PPM display characteristics. These level meters also offer visual alarm indication for each channel via the LED level meter display behavior.

The alarm is activated by audio levels falling outside of a pre-determined range for a pre-determined period of time. They allow for the setting of both level and time delay on a per-channel pair basis. Error conditions are identified on a per-channel basis. After the occurrence of an error condition, visual and audible indication, namely, LED bargraph level meter behavior and Piezo buzzer, is given. Each channels alarm indication may be individually reset via momentary push-buttons. A "Reset All" button is also provided.

The unit may be easily configured using a Windows based application.

The **ALM53 Analog** models monitor analog signals and feature "mini" Phoenix sty input connectors as standard. The **ALM53 Digital** models monitor AES/EBU digital signals with a choice of Phoenix, BNC, or XLR input connectors. Custom variations are available.

Features

- Centralized monitoring of facility-wide signal conditions
- Only two rack spaces high
- Up to twenty-four channels can be monitored
- Up to twenty-four high-resolution 53-segment tri-color LED bargraph display level meters
- Analog or Digital (AES/EBU) models available
- Alarms for Signal Loss, Over-range (clipping), and Phase/Polarity reversal
- Adjustable level thresholds for alarm conditions
- Audible Piezo alarm (mutable)
- Visible alarm indication via LED level meter behavior for each channel
- Full duplex RS-232 control/status
- Individual channel reset buttons
- All channel reset button
- Balanced inputs on "mini" or standard Phoenix, BNC, or XLR connectors (depending on model)
- Software configurable with Windows based application
- Power indication LED

NOTE: In the model names *throughout this manual*, the unspecified channel quantity is indicated by "nn", the unspecified stereo/mono is indicated by "x", and unspecified connector option is indicated by "/x".

Applications

The ALM53 Series audio alarm monitor units are an adaptable and effective way to monitor any Analog or AES/EBU digital audio application. The following are some of the applications where an ALM53 Series unit would prove valuable.

- Radio Broadcast Station
- TV Control Room
- Remote Monitoring

Input Specifications		Power Specifications	
Input Sampling Rate:	32k - 48k Auto (AES)	AC mains power:	100-250 VAC, 50/60 Hz universal input, auto switching
Input Connector(s):	Analog: "Mini" Phoenix (standard) AES/EBU: Phoenix (standard) AES/EBU: BNC or XLR (optional)	Power consumption:	25W
Physical Specifications			
AES Input Impedance:	Phoenix: 110 Ω, balanced XLR: 110 Ω, balanced BNC: 75 Ω, unbalanced	Dimensions (H x W x D):	3.5 x 19 x 8 inches 89 x 483 x 203 mm
Analog Input impedance:	>10KΩ, balanced	Weight:	7 lbs./3.1 kg

Standard Models

ALM53 Series models may be ordered with a choice of 4, 8, 16, and 24 channels standard. Other channel quantities (up to 24) may be ordered as special options. However, ALM53 Models utilizing XLR connector inputs are limited to twelve (12) or fewer channels due to space constraints resulting from the comparatively large size of XLR connectors.

NOTE: In the model names below and *throughout this manual*, the unspecified channel quantity is indicated by "nn", the unspecified stereo/mono is indicated by "x", and unspecified connector option is indicated by "/x".

- ALM53-nnAM/P:** Analog inputs, Mono, on "mini" Phoenix connectors
- ALM53-nnAS/P:** Analog inputs, Stereo, on "mini" Phoenix connectors
- ALM53-nnDM/P:** Digital (AES/EBU) inputs, Mono, on standard Phoenix connectors
- ALM53-nnDS/P:** Digital (AES/EBU) inputs, Stereo, on standard Phoenix connectors
- ALM53-nnDM/B:** Digital (AES/EBU) inputs, Mono, on BNC connectors
- ALM53-nnDS/B:** Digital (AES/EBU) inputs, Stereo, on BNC connectors
- ALM53-nnDM/X:** Digital (AES/EBU) inputs, Mono, on XLR connectors
- ALM53-nnDS/X:** Digital (AES/EBU) inputs, Stereo, on XLR connectors

Model Option Naming Key	
1st Appended Letter..... Signal	$\left\{ \begin{array}{l} \mathbf{A} = \text{Analog} \\ \mathbf{D} = \text{Digital} \end{array} \right.$
2nd Appended Letter..... Monitor	$\left\{ \begin{array}{l} \mathbf{M} = \text{Mono} \\ \mathbf{S} = \text{Stereo} \end{array} \right.$
3rd Appended Letter...Connector	$\left\{ \begin{array}{l} \mathbf{/P} = \text{Phoenix (3-Pin Male)} \\ \mathbf{/B} = \text{BNC (Female)} \\ \mathbf{/X} = \text{XLR (3-Pin Female)} \end{array} \right.$

***Analog** models use 6-pin "mini" Phoenix connectors, **Digital** models use standard 3-pin Phoenix connectors.

Other Options

Other options are available by special order including:

- Custom combinations of input connectors
- 26-segment high resolution displays in 1U rack size
- Level meter phase correlation indication (see page 23)

Other custom options are possible. Call your dealer or Wohler Technologies to discuss your specific needs.

Units are designed to meet, at time of manufacture, all currently applicable product safety and EMC requirements, such as those of CE. Features and specifications subject to improvement without notice.

Section 2

Operation

Installation

Alarm Sounder Enable/Disable Instructions

Front Panel Features

Rear Panel Features

Wohler Alarm Profile Editor Installation and Operation

Installation

Mounting

The unit should be mounted where convenient for operating persons, ideally at approximately eye level for best visual monitoring.

Heat Dissipation

No special considerations for cooling are necessary as long as the ambient temperature inside the rack area does not exceed approximately 40°C (104°F).

Mechanical Bracing

The chassis is securely attached to the front panel at five points along its surface, not just at the four corners of the chassis ears. This feature will reduce or eliminate rear bracing requirements in many mobile/portable applications. The weight of internal components is distributed fairly evenly around the unit.

Audio Connections

Connection of the audio feeds is straightforward. Please refer to the system interconnect block diagram on pages 25 and 26 for clarification of the general signal paths into the ALM53 series units.

Care should be exercised to avoid mismatched cable types and other similar causes of undesired reflections in RF signal systems.

Electrical Interference

As with any audio equipment, maximum immunity from electrical interference requires the use of shielded cable; however, satisfactory results can sometimes be obtained without it. The internal circuitry common is connected to the chassis.

AC Power

The unit's AC mains connection is via a standard IEC inlet, with safety ground connected directly to the unit's chassis. The universal AC input (100-240VAC, 50/60Hz) switching power supply is a self-resetting sealed type, with automatic over-voltage and over-current shutdown. There is no user-replaceable fuse in either the primary or secondary circuit.

Alarm Sounder Enable/Disable Instructions

All **ALM53** Series units feature a Piezo **Alarm Sounder** located on the front panel (**Item 1**, page 10). This sounder produces an audible alarm when the configured alarm threshold has been exceeded. This sounder may be disabled or enabled using the instructions below.

To **ENABLE** the acoustic sounder in the unit, perform the following steps on the front panel:

- 1) Hold down the **Reset All** button (**Item 6**, page 10)
- 2) Press and *release* the **Channel 3 Reset Alarm** button (**Item 4**, page 10)
- 3) Release the **Reset All** button

To **DISABLE** the acoustic sounder in the unit, perform the following steps on the front panel:

- 1) Hold down the **Reset All** button (**Item 6**, page 10)
- 2) Press and *release* the **Channel 1 Reset Alarm** button (**Item 4**, page 10)
- 3) Release the **Reset All** button

Front Panel Features

Please refer to the example in **Figure-2a** on the following page to familiarize yourself with the front panel features of the **ALM53** Series units covered by this manual. The following sections describe these functions and are referenced, by number, to **Figure-2a**.

1 Alarm Sounder

This Piezo **Alarm Sounder** speaker produces an audible alarm when the the alarm threshold has been exceeded. See page 9 for instructions for how to disable or enable the **Alarm Sounder**.

2 Bargraph Brightness Trim Pot

This control is recessed into the front panel and can be accessed using a small screwdriver. Turning it clockwise will increase the relative brightness of the bargraph display LED segments. Adjusting this one control will simultaneously affect the brightness of all bargraph displays on the front panel.

3 Audio Level Meter LED Bargraph Displays (1-24)

Audio levels for the audio input sources are displayed via these 53-segment tri-color (green, amber, red) **LED Bargraph Display** level meters.

Each **LED Bargraph Display** represents a *single* channel. Each **Reset Button (Item 4)**, located above the LED bargraphs, has a channel number, which corresponds to the numbers found next to the input connectors on the rear panel. Bargraph displays are arranged in groups of four on the front panel, four being the number of input channels available in each input section on the rear panel.

ALM26-nnD (Digital): Each group of four bargraph displays is user adjustable for **Reference Level** calibration and **PPM/VU Display Mode** via a DIP switch module on the rear panel. This DIP switch module is located between the two input connectors in each input section on the rear panel. See **Item C**, page 12 for more information regarding the rear panel DIP switch locations and settings.

ALM26-nnA (Analog): Each group of four bargraph displays is user adjustable for **Reference Level** calibration and **PPM/VU Display Mode** via a DIP switch module on the rear panel. This DIP switch module is located between the two input connectors in each input section on the rear panel. See **Item E**, page 14 for more information regarding the rear panel DIP switch locations and settings.

Alarm Indication Behavior

Each 53-segment LED bargraph display is split into three regions to report alarm conditions:

Top one third = **Clipping Alarm** indication

Middle one third = **Phase Alarm** indication

Bottom one third = **Loss of Audio Alarm** indication

OR

Bottom one third = **AES/EBU Carrier Loss** indication (In a Digital unit)

NOTE: Each of the above four features may be enabled or disabled by the factory.

In an alarm condition, the appropriate bargraph LED segments (see above) will alternately flash between RED and the color previously displayed in the individual LED segments. To reset the alarm behavior for each individual LED bargraph, press the **Reset Alarm Button** directly above the bargraph (**Item 4**). To simultaneously reset the alarm behavior of ALL the bargraphs in the unit, press the **Reset All Alarm Button (Item 6)**.

4 Reset Alarm Button (1-24)

These momentary push-buttons reset the level meter alarm function for each *individual* channel. When a button is pushed, only the level meter located directly below it is reset.

5 Power Indication LED

This LED lights up GREEN to indicate the **ALM53** Series unit is connected to operational mains power.

6 Reset All Alarm Button

This momentary push-button simultaneously resets the level meter alarm function for ALL the channels in the unit.

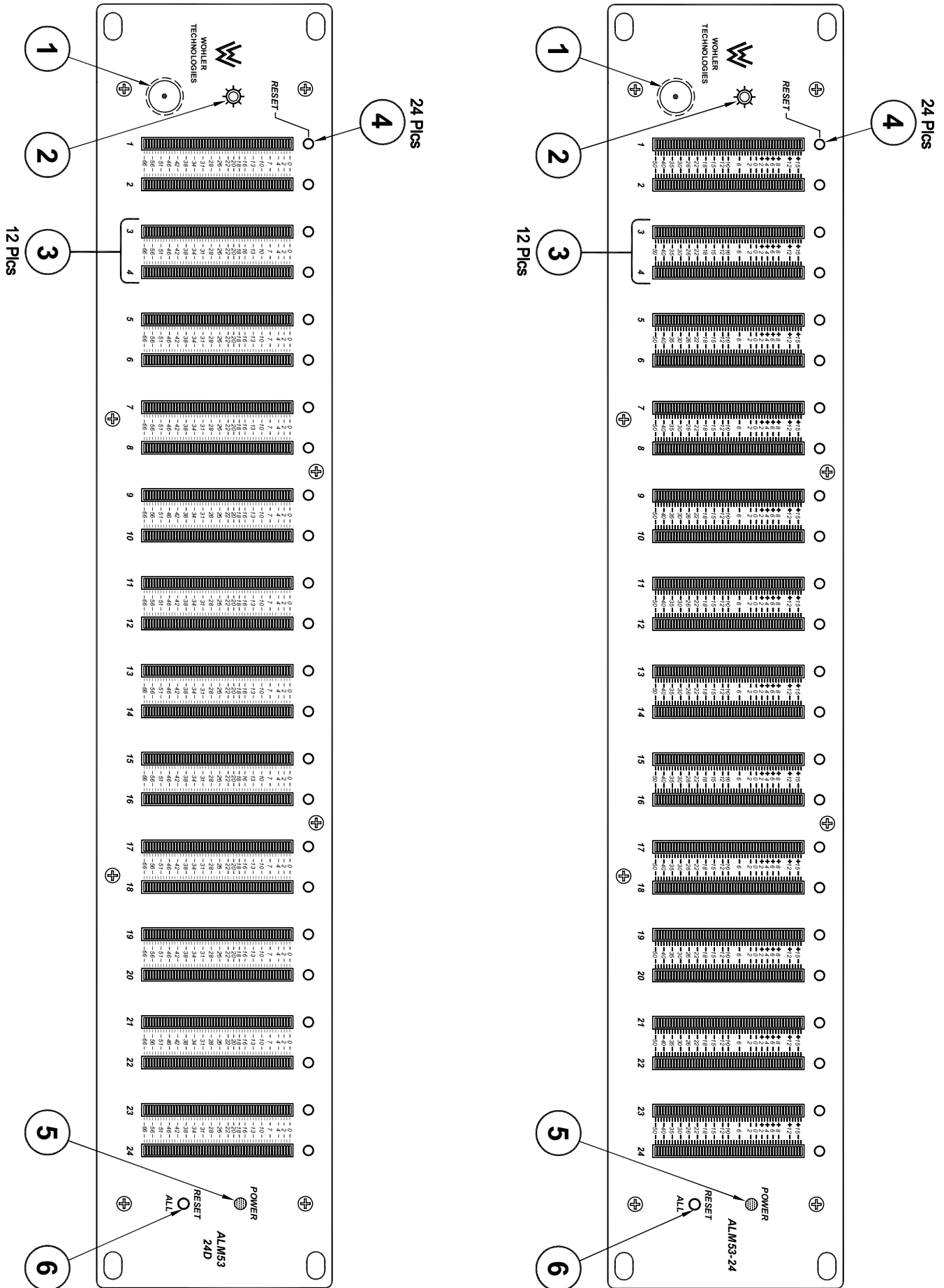


Figure-2a: Front Panel Features

Rear Panel Features

Please refer to **Figure-2b** on the following page to familiarize yourself with the rear panel features of the **ALM53** Series units covered by this manual. The following sections describe these features and are referenced, by letter, to **Figure-2b**. **Note:** Only the XLR and "mini" Phoenix 24-channel versions of the **ALM53** Series models are shown in **Figure-2b**.

A Power Input Connector

Attach a standard IEC-320 power cord between this connector and mains power (100 - 240VAC nominal, 50/60 Hz). The front panel **Power Indication LED** (**Item 5**, page 10) will glow GREEN to indicate operating voltages are present.

B Digital (AES) Audio Input Connectors

ALM53-nnD (Digital) Only

Each input connector receives an AES digital signal from which two channels are derived. The Digital units have *balanced* (110 Ω impedance) inputs terminated in either standard **Phoenix** or **XLR** connectors or have *unbalanced* (75 Ω impedance) inputs terminated in **BNC** connectors. Channel numbers are displayed above or below each connector and correspond to the channel numbers above the associated LED bargraph displays on the front panel. **Phoenix** connector pinouts are silk-screened just below each connector. A diagram of the **XLR** connector pinouts is shown in **Figure-2c** at bottom of this page.

C Digital Input Termination, Reference Level, and Display Mode DIP Switch

ALM53-nnD (Digital) Only

This DIP switch sets the **Termination** for the input connectors, and the bargraph **Display Mode** and **Reference Level** for the associated bargraph displays. Each DIP switch module affects only the four channels (two input connectors) within the section in which it is located. See the descriptions and diagram below for setting information.

Termination:

Switch sections **1** (left connector) and **6** (right connector) respectively set the termination for the connector inputs in each 4-channel input section. The respective DIP switch section should be moved to the **UP** position to **UNTERMINATE** the connector if the input signal is fed to downstream equipment. The respective DIP switch section should be moved to the **DOWN** position to **TERMINATE** the connector if the input signal is *not* fed to downstream equipment. The factory **default setting** is **TERMINATED** for each input connector. See diagram below for settings.

Reference Level:

DIP switch sections **2** and **3** determine the **Reference Level**, which adjusts the level of the input signal and the resultant level displayed on the LED bargraphs. Factory setting is -20 dBfs. See diagram below for settings.

Bargraph Display Modes:

DIP switch sections **4** and **5** determine how peak levels are displayed for the four associated meters on the front panel. There are three possible settings; **VU Only**, **VU-PPM Floating Segment**, and **PPM Only**. The factory **default setting** is **VU-PPM Floating Segment**. See diagram below for settings. See the "**ALM53 Internal Settings - Address, Peak Hold, PPM Characteristics**" diagram on page 23 for separately setting the **Peak Hold** and **PPM Ballistics** characteristics. See diagram below for settings.

ALM53 AES Digital Rear Panel DIP Switch Settings			
Termination (Left Side Input)	Reference Level	Display Mode	Termination (Right Side Input)
<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> Term </div> <div style="text-align: center;"> Unterm </div> </div> <p>1 2 3 4 5 6</p>	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> -9 dBfs </div> <div style="text-align: center;"> -18 dBfs </div> <div style="text-align: center;"> -20 dBfs </div> <div style="text-align: center;"> Not Used </div> </div> <p>2 3 1 2 3 4 5 6</p>	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> VU Only </div> <div style="text-align: center;"> VU-PPM Floating Segment </div> <div style="text-align: center;"> PPM Only </div> <div style="text-align: center;"> Not Used </div> </div> <p>4 5 1 2 3 4 5 6</p>	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> Term </div> <div style="text-align: center;"> Unterm </div> </div> <p>6 1 2 3 4 5 6</p>

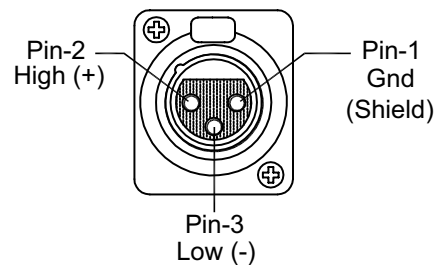


Figure-2c: XLR Pinout

(Continued)

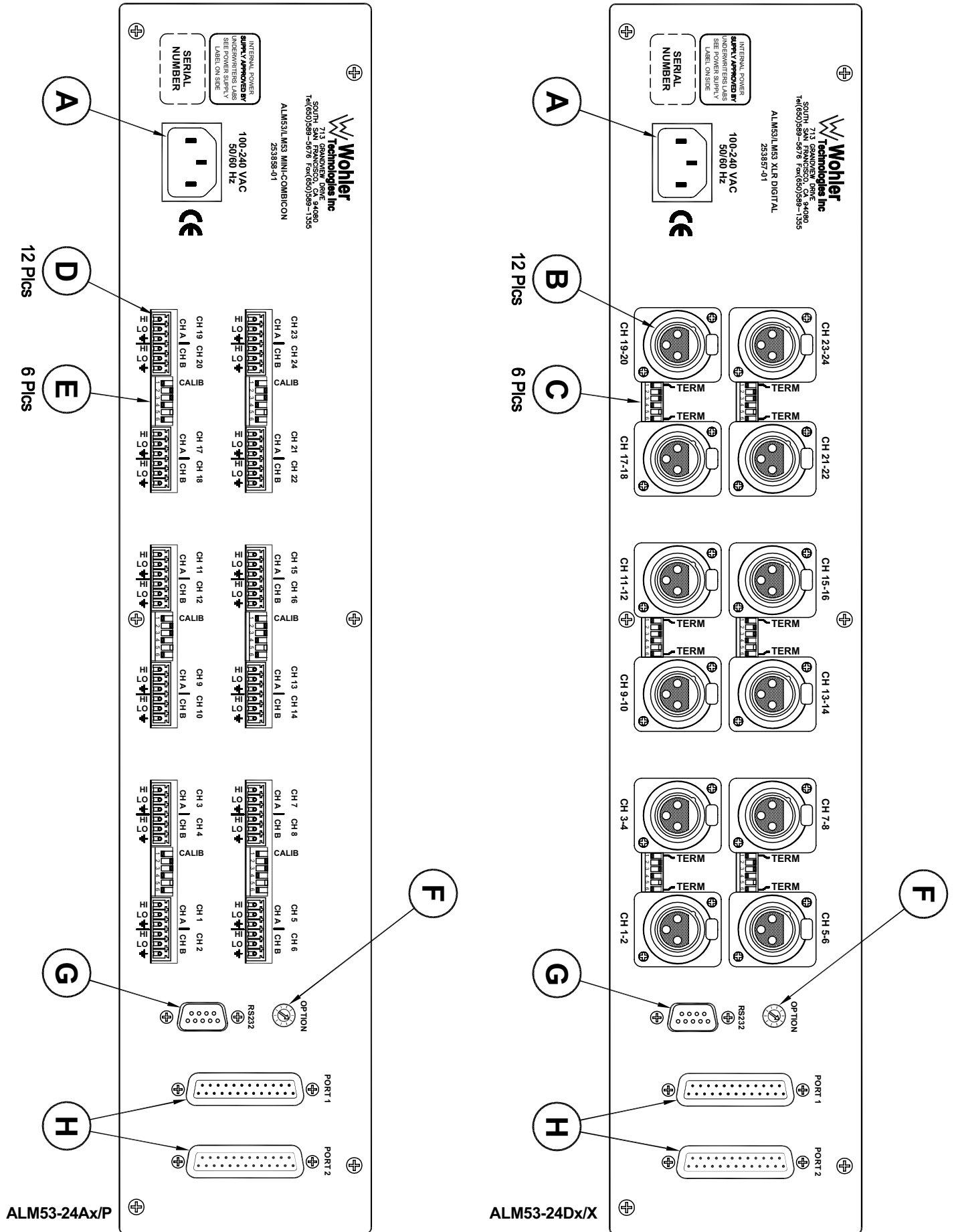


Figure-2b: Rear Panel Features

Rear Panel Features

(Continued)

D Analog Audio Input Connectors

ALM53-*nnA* (Analog) Only

The Analog units have *balanced* (>10K Ω impedance) inputs terminated in 6-pin "mini" Phoenix connectors. There are two separate analog signals; one signal to the *left* three pins (**CH A**) and the second signal to the *right* three pins (**CH B**). There are two input connectors per input section (4 channels). Channel numbers are displayed above each connector and correspond to the channel numbers above the associated LED bargraph displays on the front panel. Pin-out information is silk-screened on the rear panel directly below each connector.

E Analog Line Level, Reference Level, and Display Mode DIP Switch

ALM53-*nnA* (Analog) Only

This DIP switch sets the **Line Level Calibration**, **Reference Level**, and **PPM/VU Display Mode**. Each DIP switch module affects only the four channels within the section in which it is located. See the descriptions and diagram below for setting information.

Line Level (Auto) Calibration:

The unit is calibrated at the factory. To recalibrate:

- 1) Turn on the power.
- 2) Apply the desired reference level (nominal 0) signal to all four channels.
- 3) Make sure the **Reference Level** DIP sections (2 and 3) are set to the nearest level of the input signal being applied for calibration (i.e., 0, +4, +6 or +8). The user should make sure that the signal applied to all four channels is within +/- 4 dB of the reference level selected by DIP switch sections 2 and 3.
- 4) Place DIP section 1 in the **DOWN** position.
- 5) Wait 10 seconds. The unit will remove the previous calibration and the new calibration will be applied.
- 6) Place DIP section 1 in the **UP** position and return unit to service.
- 7) Only ONE auto-calibration attempt may be made for each cycling of AC power to the unit. Once the **Line Level Calibration** DIP switch has been placed in the **CAL** position, it is necessary to cycle the power before that DIP switch will be functional again, **EVEN** if a calibration attempt was unsuccessful.

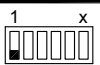
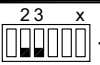

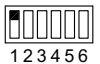






If one wishes to calibrate again, turn off the power to the unit and repeat steps 1 through 6.

Reference Level:

DIP switch sections 2 and 3 determine the **Reference Level**, which adjusts the level of the input signal and the resultant level displayed on the LED bargraphs. Factory setting is +4 dB.

Bargraph Display Mode:

DIP switch sections 4 and 5 determine how peak levels are displayed for the four associated meters on the front panel. There are three possible settings; **VU Only**, **VU-PPM Floating Segment**, and **PPM Only**. The factory **default setting** is **VU-PPM Floating Segment**. See diagram below for settings. See the "ALM53 Internal Settings - Address, Peak Hold, PPM Characteristics" diagram on page 23 for separately setting the **Peak Hold** and **PPM Ballistics** characteristics.

ALM53 Analog Rear Panel DIP Switch Settings		
Meter Calibration	Reference Level	Display Mode
<div style="display: flex; justify-content: space-between; width: 100%;"> 1 x </div>  <div style="display: flex; justify-content: space-between; width: 100%;"> Calibrate </div>	<div style="display: flex; justify-content: space-between; width: 100%;"> 2 3 x </div>  <div style="display: flex; justify-content: space-between; width: 100%;"> +8 dB </div>	<div style="display: flex; justify-content: space-between; width: 100%;"> 4 5 x </div>  <div style="display: flex; justify-content: space-between; width: 100%;"> VU Only </div>
 <div style="display: flex; justify-content: space-between; width: 100%;"> Operate </div> <div style="display: flex; justify-content: space-between; width: 100%;"> 1 2 3 4 5 6 </div>	 <div style="display: flex; justify-content: space-between; width: 100%;"> +6 dB </div>	 <div style="display: flex; justify-content: space-between; width: 100%;"> VU-PPM Floating Segment </div>
	 <div style="display: flex; justify-content: space-between; width: 100%;"> +4 dB </div>	 <div style="display: flex; justify-content: space-between; width: 100%;"> PPM Only </div>
	 <div style="display: flex; justify-content: space-between; width: 100%;"> 0 dB </div> <div style="display: flex; justify-content: space-between; width: 100%;"> 1 2 3 4 5 6 </div>	 <div style="display: flex; justify-content: space-between; width: 100%;"> Not Used </div> <div style="display: flex; justify-content: space-between; width: 100%;"> 1 2 3 4 5 6 </div>

Note: Position-6 of DIP switch is not functional

NOTE: For more accurate indication of signal levels, *analog* meters are tuned to effect a "rounding" function, which occur BETWEEN the thresholds of any two bargraph segments. This means the level meter zero LED segment will turn on at one-half the smallest spacing between LED segments (mid-scale resolution) *before* that segment's scale indication. This "rounding offset" is **0.5 dB** for the **Analog (extended VU)**, **Digital**, **Nordic**, and **DIN** scales. It is **0.25 dB** for the **BBC** scale and **0.125 dB** for the **VU** scale. For example, using the **Analog (extended VU)** scale, a meter calibrated for a **+4 dBu** nominal level will actually turn the zero LED segment of the level meter on at **3.5 dBu** and *all* segments will turn on at **0.5 dBu** *before* that segment's silk-screened scale indication.

(Continued)

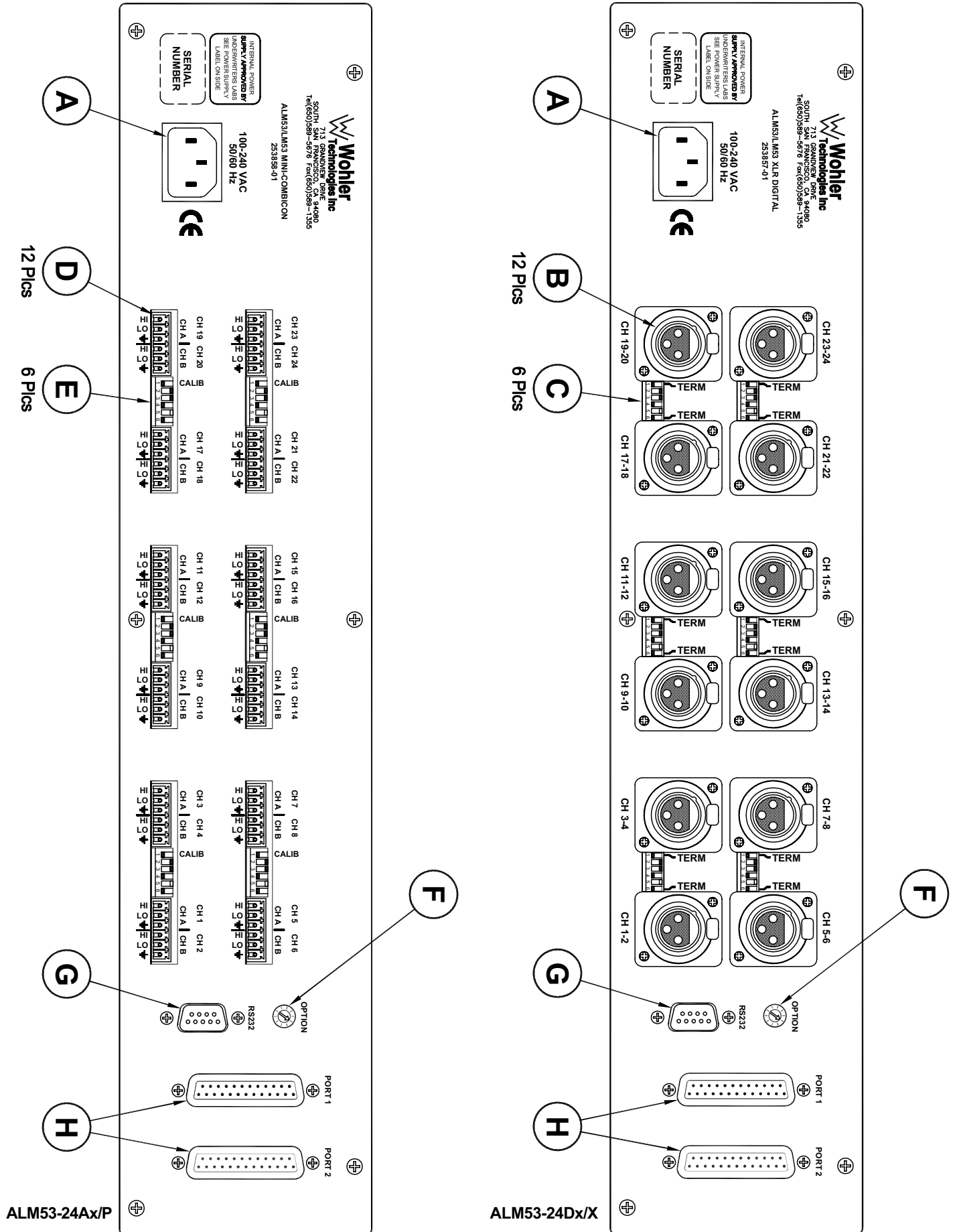


Figure-2b: Rear Panel Features

Rear Panel Features

(Continued)

F Option Select Switch

This 10-position **BCD** (Binary Coded Decimal) rotary switch is used to set operation of the unit. It can be accessed using a small flathead screwdriver or similar tool. See table below for settings.

Please note that choosing alternate scales may require a change to the scale indication silk-screening next to the bargraph display level meters on the front panel. See page 24 ("**Level Meter Alternative Scales**") for more information.

For position **2**, see page 19 ("**Wohler Alarm Profile Editor: Equipment Hookup and Data Download**") for instructions for downloading alarm threshold settings.

Position	Function
0	Factory Only
1	Factory Only
2	Alarm Threshold Download
3	AES scale
4	Ext. VU scale
5	Vu scale
6	BBC scale
7	Nordic scale
8	DIN scale
9	Custom scale

G Serial Control Connector

This connector is used for **Remote Control** and for software upgrades of the product. See table below for pinout information.

Pin#	Function
1	DCD
2	Rx Data
3	Tx Data
4	DTR
5	Ground
6	DSR
7	RTS
8	CTS
9	Not Used

Note: Pins 1, 4, and 6 are linked and pins 7 and 8 are linked.

H Port Connector (1 and 2)

The **PORT 1** DB-25 connector is used to convey alarm conditions to outboard equipment. The **PORT 2** connector is nonfunctional and not currently used. The **PORT 1** connector has isolated contact closures, which indicate Alarm conditions for the associated channel pairs. These contacts are normally open and close on alarm. A summary contact pair exists between pins **1** and **14**. If any relay pair in the unit closes, the summary contacts also close.

Example: If channel 15 or 16 trips into alarm, a contact closure will occur between pins **9** and **21** for the duration of the alarm.

Pin#	Function	Pin#	Function
1	Unit Alarm A		
2	CH 1-2 A	14	Unit Alarm B / CH 1-2 B
3	CH 3-4 A	15	CH 3-4 B
4	CH 5-6 A	16	CH 5-6 B
5	CH 7-8 A	17	CH 7-8 B
6	CH 9-10 A	18	CH 9-10 B
7	CH 11-12 A	19	CH 11-12 B
8	CH 13-14 A	20	CH 13-14 B
9	CH 15-16 A	21	CH 15-16 B
10	CH 17-18 A	22	CH 17-18 B
11	CH 19-20 A	23	CH 19-20 B
12	CH 21-22 A	24	CH 21-22 B
13	CH 23-24 A	25	CH 23-24 B

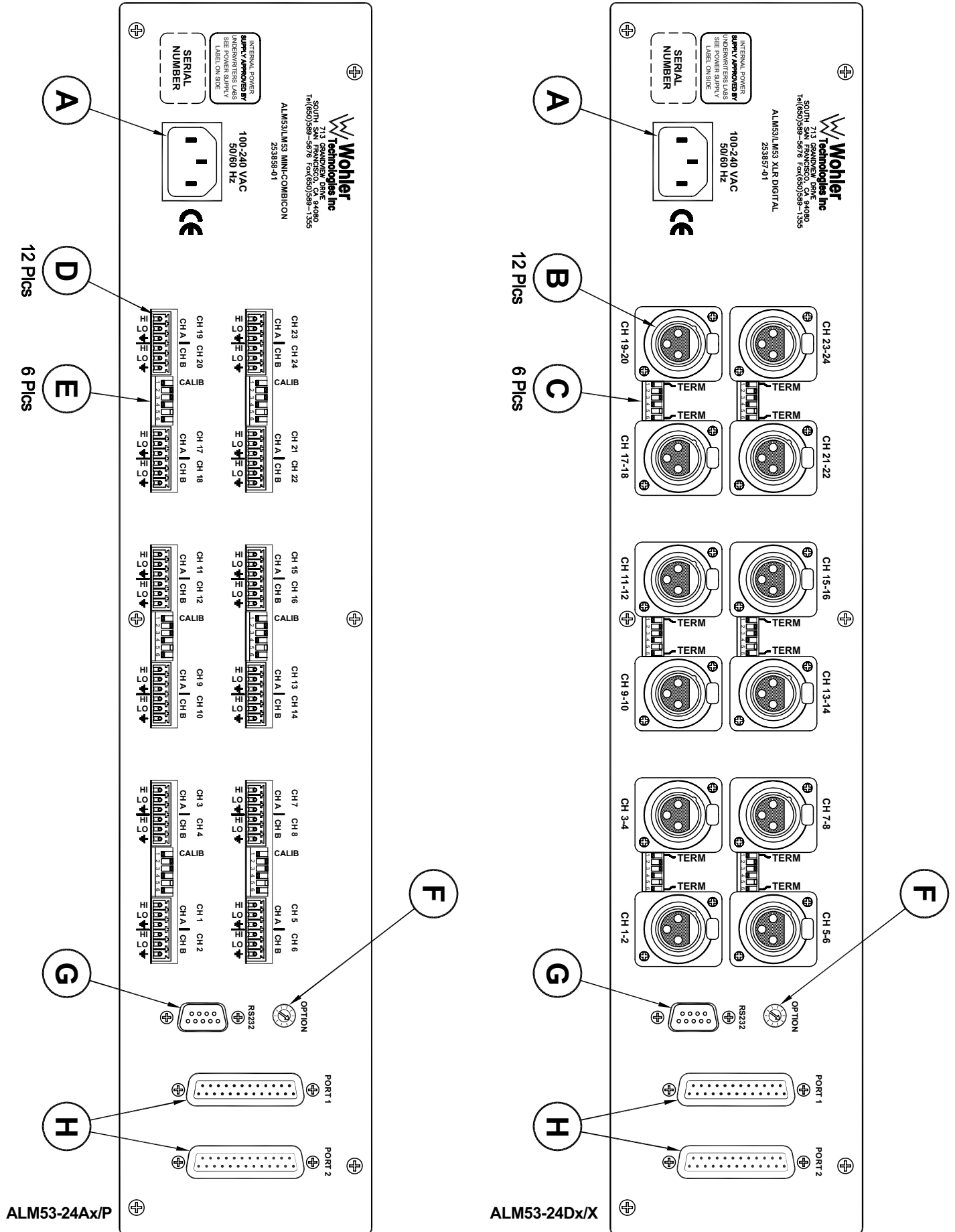


Figure-2b: Rear Panel Features

Alarm Profile Editor Installation and Operation

Background

The Wohler **Alarm Profile Editor** is a Windows application designed to allow the user of the Wohler Alarm products to be able to change alarm trip thresholds.

The application targets the following operating systems: WIN 95, WIN 98, WIN 2000, WIN NT4.0 and WIN XP.

The application is distributed with product on CD-ROM, or may be downloaded from the Wohler Web site (see Factory for details).

A Wintel architecture machine with at least 10M bytes of hard disk space and a spare COM1 port are required for this application to be installed correctly.

Installation

The installation package is supplied as three files:

- **setup.exe**
- **setup.lst**
- **wohler_alarm_profile_editor.cab**

Load all three files into a temporary directory (c:\temp on most machines) then start the installation process by running setup.exe (from Windows Explorer, double click on Setup.exe).

The application installer will take you through the process step by step. It is recommended that you accept defaults where possible. The default installation path is **c:\Program Files\ Wohler_Alarm_Profile_Editor**.

Application Operation

Execute the **Alarm Profile Editor** by selecting : **Start Menu : Programs : Wohler_Alarm_Profile_Editor : Wohler_Alarm_Profile_Editor**.

Select **Stereo** or **Mono** mode - depending upon how your unit was ordered.

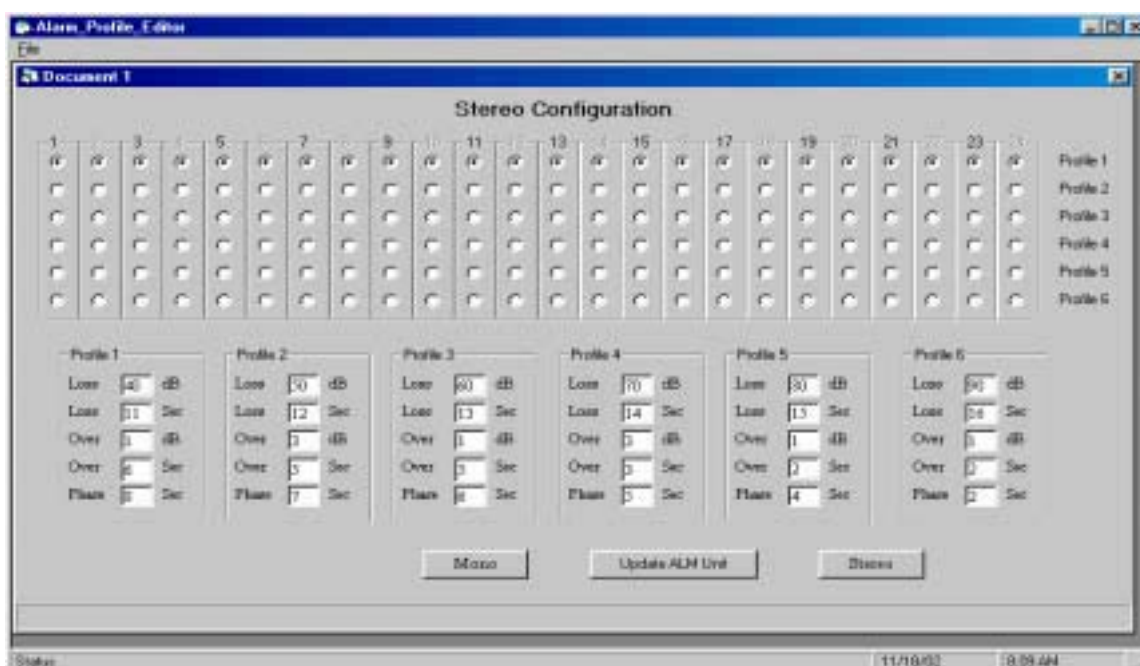
Note: For Analog units, Full Scale Input (0 dBFS) is +24dBu.

Example 1: To set an Analog unit to an Audio Loss threshold of -10 dB ref given a studio reference level of 0 dBu, set the Loss parameter to 34 dB in the **Alarm Profile Editor**.

Example 2: To set an Analog unit to an Audio Loss threshold of -20 dB ref given a studio reference level of +4 dBu, set the Loss parameter to 40 dB in the **Alarm Profile Editor**.

Stereo: Alarm Profile Editor Screen

In **Stereo**, the **Main Editor Screen** is similar to the following:



(Continued)

Alarm Profile Editor Installation and Operation

Stereo: Alarm Profile Editor Screen (Continued)

Each Alarm Profile consists of five parameters:

Loss Amplitude: A threshold in dB (with respect to **Digital Full Scale**) below which **Silence** is deemed to be active.

Loss Duration: A qualifying period that the **Loss Amplitude** criterion has been met. When **Loss Amplitude** has been met for **Loss Duration**, then a **Loss of Audio** alarm condition has been met. The unit will then trip into and report that alarm.

Over(load) Amplitude: A threshold in dB (below **Digital Full Scale**) above which **Over** is deemed to be active.

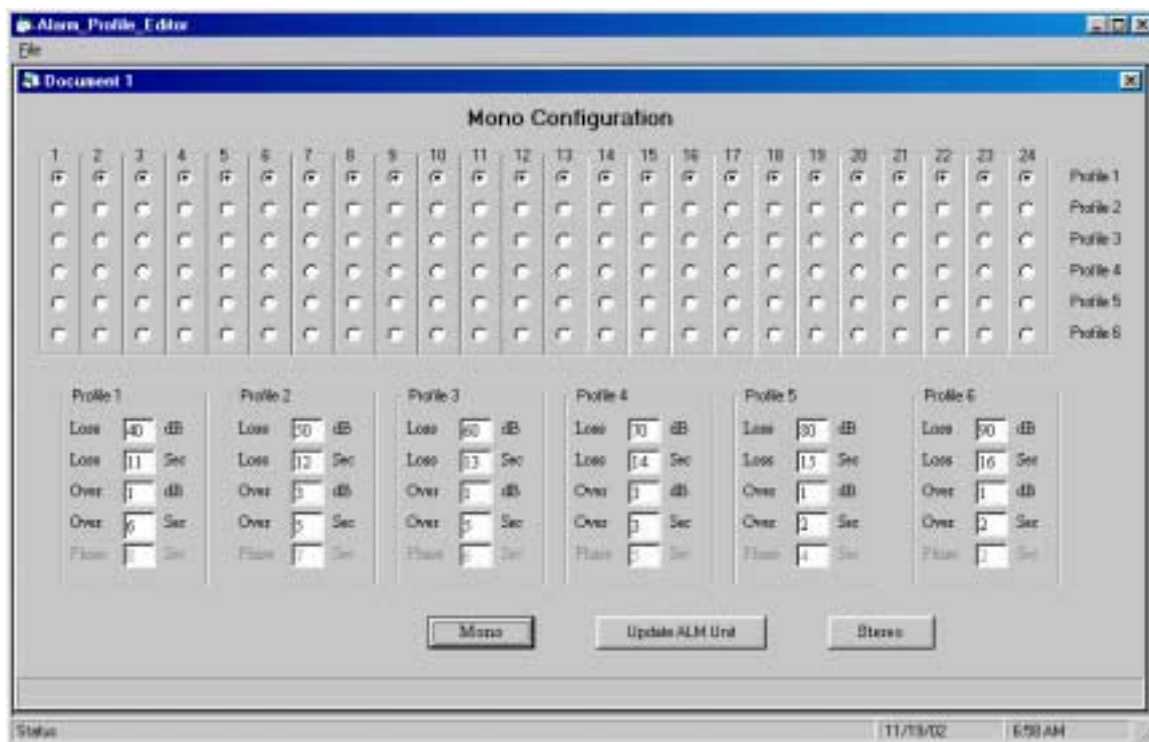
Over(load) Duration: A qualifying period that the **Over Amplitude** criterion has been met. When **Over Amplitude** has been met for **Over Duration**, then an **Overload Audio** alarm condition has been met. The unit will then trip into and report that alarm.

Phase Duration: A period that average signal out of phase has to be met to trip an **Audio Phase** alarm condition.

Notice that the odd and even channels are "ganged together" for **Stereo** operation. By selecting profile **2** for channel **3**, channel **4** also has that profile assigned to it.

Mono : Alarm Profile Editor Screen

In **Mono**, the **Main Editor Screen** is similar to the following:



Unlike Stereo, each channel is independent and the Phase option is not enabled.

Equipment Hook up and Data Download

- A "straight through" cable should be used for hookup between the PC running the **Alarm Profile Editor** and the unit receiving the profile.
- To put the Wohler Alarm unit into **Load Profile** mode, remove power, set the rear panel **Option Select** BCD switch (**Item F**, page 16) to position **2**, reapply power. The unit is then ready to receive its' new set of profiles.
- Click on the **Update ALM Unit** button and the profile will load. The process should take less than a minute. During the download process, the text **Status** (bottom left of the screen) will be replaced with a single line progress report of the download.
- Once the download is complete, remove power from the Alarm Unit, return the **Option Select** BCD switch to its previous setting then reapply power.
- Download is complete.

Section 3

Technical Information

- RS232 Status and Control
- LED Bargraph Display Specifications
- Internal Settings DIP Switch - Address, Peak Hold, PPM Characteristics
 - Level Meter Alternative Scales
 - Level Meter Phase Correlation Option
 - ALM53-nnA Interconnect Block Diagram
 - ALM53-nnD Interconnect Block Diagram

RS232 Status and Control

Interface Type

The RS232 connector on the **ALM53** Series units is a female DB9, configured for **Data Communications Equipment (DCE)**. With a "straight through" 9-way RS232 cable, this port will connect directly to a COM port on an IBM compatible computer.

Serial Form

Data is sent and received without any handshaking using the following data format:

Rate: 9600 Baud
Format: 8 bits
Stop Bits: 1
Parity: None

Messages from ALARM unit

Data is sent out of the **ALM53** units formatted as ASCII Hex, most significant data first, length is 32 bits, the string is terminated by Carriage Return, Line Feed.

The 32 bit message contains an 8 bit Command Code (B31..24) and 24 bits of Channel Data (B23..0).

Command Codes:

00NNNNNN	Carrier Loss Alarm
01NNNNNN	Audio Loss Alarm
02NNNNNN	Phase Alarm
03NNNNNN	Over(load) Alarm

Channel Data:

MM000001	Channel 1
MM800000	Channel 24

B0 set represents Channel 1 Alarm
 B1 set represents Channel 2 Alarm
 B2 set represents Channel 3 Alarm
 B22 set represents Channel 23 Alarm
 B23 set represents Channel 24 Alarm

Where MM indicates 1 byte of Command code and NNNNNN indicates 3 bytes of channel data.

Examples:

ALM53 unit reports that Channel 3 has just tripped into **Phase Alarm**. Unit sends out the following message: **02000004<cr><lf>**.

ALM53 unit reports that Channel 23 has just tripped into **Overload Alarm**. Unit sends out the following message: **03400000<cr><lf>**.

Messages to ALARM unit

Data is sent to the **ALM53** unit using the same data format as in section 3. The initial command code the unit can accept is 80, which is channel reset. Any number of channels may be reset using this one command:

Command Code:

80NNNNNN	Channel Reset
----------	---------------

Channel Data:

80000001	Channel 1 Alarm Reset
80800000	Channel 24 Alarm Reset
80FFFFFF	All channels Alarm Reset

Notes

- 1) Hexadecimal notation is indicated in this section.
- 2) The **ALM53** units only generate and respond to RS232 commands when the **Option Select Switch (Item F, page 16)** is set to one of the "Normal" modes (selection 3 through 9).
- 3) The **ALM53** Series unit will only generate messages when a check of state occurs with the unit, i.e., **Acquisition** or **Loss of** and **Alarm** state.

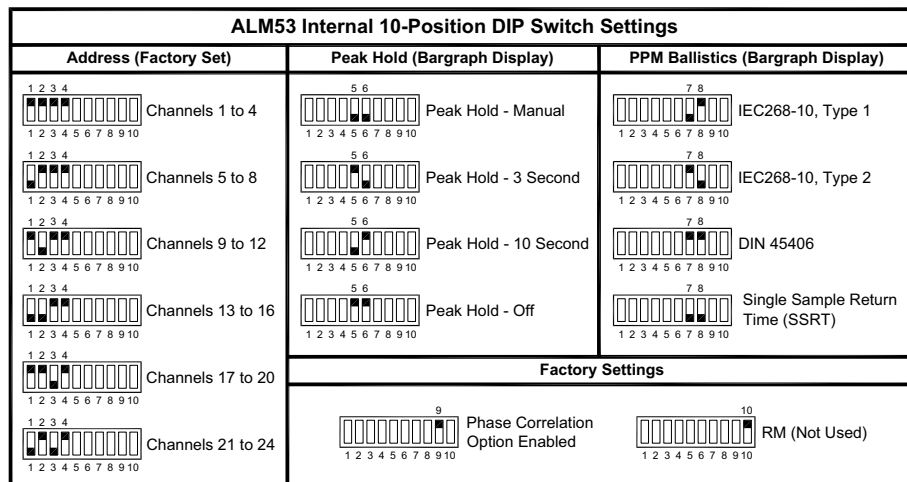
LED Bargraph Display Specifications

Level meter type:	LED bargraph
Segment quantity:	53
Level gain (DIP switch selectable):	0, +4, +6, +8 dB
Bargraph Length:	2.22" (56.4 mm)
LED segment size:	0.14" x 0.028" (3.57 x 0.7 mm)
LED segment pitch:	0.041" (1.05 mm)
Segment display color:	Tri-color (red, amber, green)
Peak emission wavelength:	Green: 570 nm, Red: 630 nm
Segment brightness, (If = 20 mA):	3.5 mcd
Segment brightness, uniformity:	<10% difference between segments
Adjacent segment "Off" brightness:	<1% of brightness of active segment

Notes:

- 1) For level meter **Input Reference** and **Display Mode** settings, see pages 12 (Digital) and 14 (Analog).
- 2) For level meter **Addressing**, **Peak Hold**, and **PPM Characteristics** settings, see this page, below.
- 3) For level meter **Alternate Scales** and **Phase Correlation Option** information, see page 24.

Internal Settings DIP Switch - Address, Peak Hold, PPM Characteristics



Note: DIP switch is located on Analog Input PCB (919174) or Digital Input PCB (919175) .

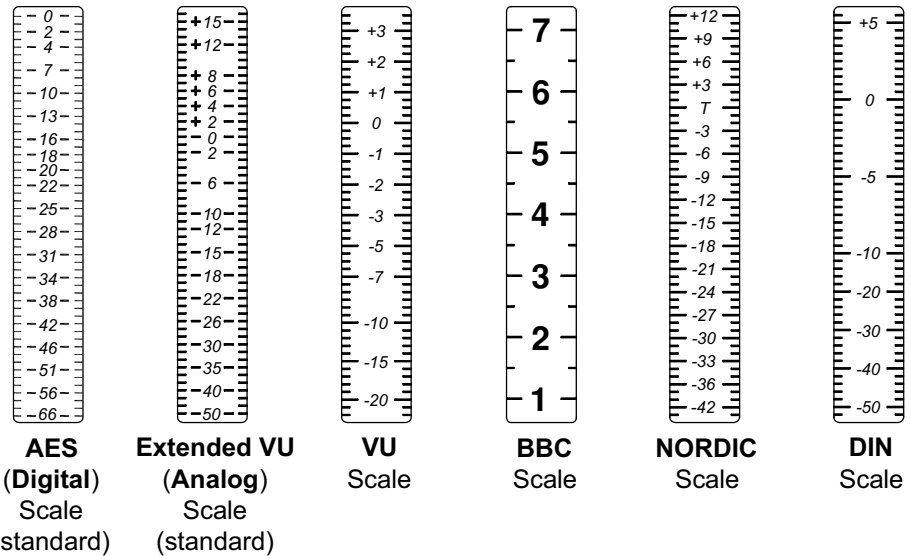
PPM Characteristics (Ballistics):

The **PPM** characteristics determine the **Integration Time** (rise time) and **Return Time** (fall time) of the level meter. The **Integration Time** is the time it takes for the lighted segments of the level meter, after application of a 5 Khz tone at a certain reference level, to *rise* within a specified number of dB of that level. **Return Time** is the time it takes for the lighted segments of the level meter to *fall* a certain number of dB after removal of a 5 Khz tone of a certain reference level. The **PPM** characteristics available for selection using DIP switch sections 7 and 8 of the 10-position **Internal DIP Switch** (as shown in the above diagram) are as follows:

IEC268-10, Type 1:	Integration Time is 5 ms (-2 dB), Return Time is 1.7 seconds (20 dB)
IEC268-10, Type 2:	Integration Time is 10 ms (-2 dB), Return Time is 2.8 seconds (24 dB)
DIN 4506:	Integration Time is 5 ms (-2 dB), Return Time is 1.5 seconds (20 dB)
Single Sample:	Integration Time is a single sample, Return Time is 1.5 seconds (20 dB)

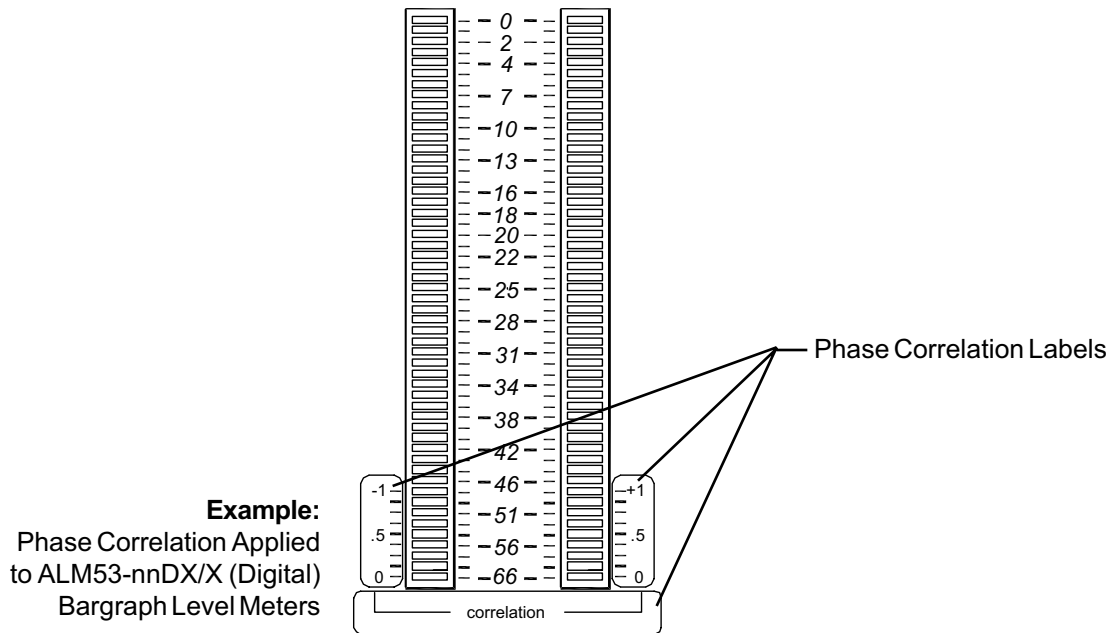
Level Meter Alternative Scales

The standard scales used on the **ALM53** Series level meters are the **Extended VU** for *analog* models and **AES Scale** for *AES digital* models (see diagram below). However, if alternative scale characteristics are selected for the level meters using the **Option Select Switch (Item F, page 16)**, it is recommended that a label with the appropriate scale be applied to the front panel LED bargraph level meters. Alternative scales include the **VU**, **BBC**, **NORDI C**, and **DIN** scales (see diagram below). Contact **Wohler Technologies** for information about alternative scale labels for the **ALM53** Series units.



Level Meter Phase Correlation Option

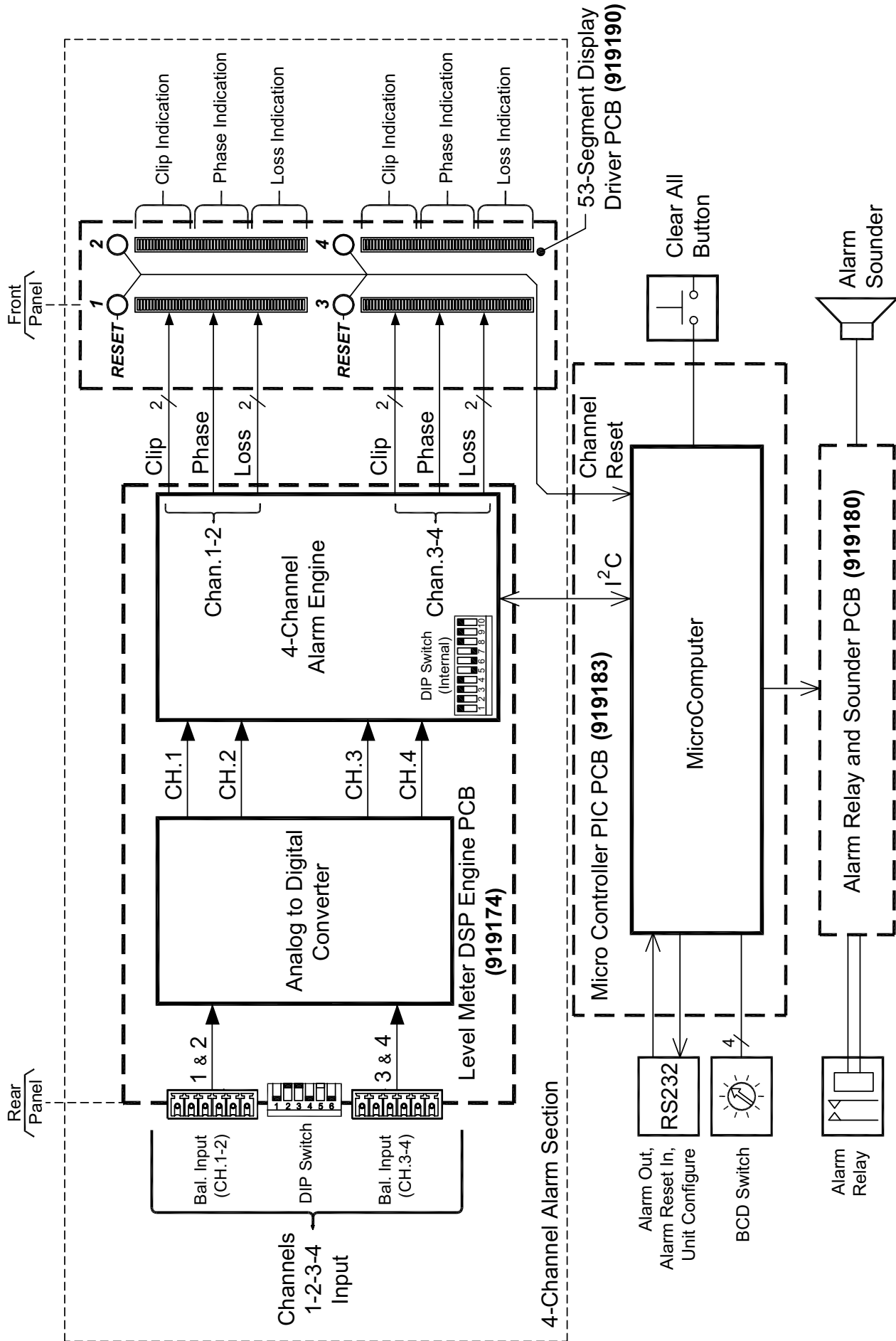
Since it is sometimes helpful to observe phase relationships between two signals being monitored, a **Phase Correlation** feature can be implemented within the lower section of an existing bargraph pair in the **ALM53** Series units. This option can be specified at the time of order.



Positive correlation is indicated by an ascending **AMBER** bar in the *right* side bargraph; **negative** correlation is indicated by an ascending **RED** bar in the *left* side bargraph. (On horizontally oriented bargraphs, Left corresponds to Upper, Right to Lower.) While the audio level in **BOTH** channels is high enough, the **Phase Correlation** indication occupies the bottom nine segments of both bargraphs of a 53-segment pair. One additional segment above the active correlation region is always **OFF**, to serve as a marker. The correlation display is visible **ONLY** so long as the **VU** audio level is above this blank segment (Tenth from the bottom on 53-segment bargraph).

The **Phase Correlation** feature is enabled/disabled by DIP switch section **9** of the **Internal Settings DIP Switch** (see page 23).

ALM53-nnAxP (Analog) Interconnect Block Diagram



03/03/03 Rev-A

ALM53-nnAxP (Analog) Interconnect Block Diagram

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