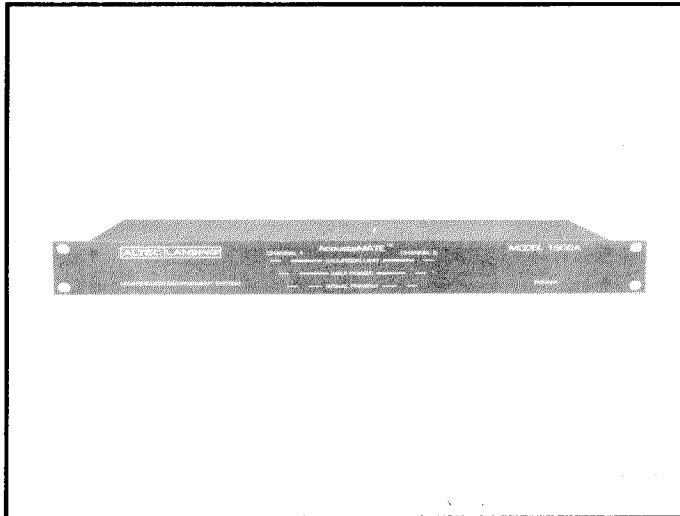




1902A AcoustaMATE™ Signal Processor



KEY APPLICATIONS

- ★ AcoustaMATE loudspeaker management system
- ★ Stand-alone over-excursion limiter
- ★ Low and high frequency enhancement device

KEY FEATURES

- ★ Low and high frequency enhancement
- ★ Over-excursion limiter
- ★ Absolutely no setup or calibration
- ★ Two completely independent channels
- ★ Electronically-balanced inputs and outputs
(Optional transformers)
- ★ XLR and barrier strip connectors
- ★ Turn-on delay/auto-bypass relay

KEY INSTALLATIONS

- ★ Houses of Worship
- ★ Hotel lounges
- ★ Discos
- ★ Portable music/PA
- ★ Nightclubs
- ★ Small theaters, dinner theaters, etc.
- ★ Small/medium casino showrooms
- ★ Audio/video rooms
- ★ Small/medium auditoriums
- ★ Small/medium performing arts centers

DESCRIPTION

In many architectural environments, limited space may dictate the use of smaller limited range loudspeaker systems. Although acceptable for speech, they can not reproduce high definition music or digital audio as well as full range systems. This begs the question, "Can the attributes of full range high fidelity sound be safely restored to limited range loudspeaker systems?". ALTEC LANSING researched this problem long and hard, and has responded with "AcoustaMATE™".

AcoustaMATE is a loudspeaker management system. Its primary *managerial* function is to make loudspeaker boxes sound fuller and bigger, not just louder. Depending on the loudspeaker, it can create the perception of a subwoofer and super tweeter thus making a 2-way box sound more like a 4-way. It can be used with almost any loudspeaker system for which a plug-in personality module is available.

The plug-in loudspeaker personality modules (available separately) determine the internal low

DESCRIPTION (continued)

and high frequency enhancement levels as well as the woofer's excursion limit parameters. Since **AcoustaMATE** is a dual channel device, it accommodates one plug-in personality module per channel. Thus, one loudspeaker can be managed by one channel and a completely different one by the other. For security reasons, the personality modules install inside the unit.

The *bigger* sound is accomplished through low and high frequency enhancement circuits. At the high frequency end, the upper harmonic content of the input signal is extracted, shaped, amplified and added back to the original signal. This process adds extra *brilliance* and *edge*. The inverse process takes place at the low frequency end resulting in a smooth rounded *bottom*, without muddying up the upper bass or midrange areas. Since these circuits are mostly static in nature, there are no audible side-effects such as pumping or breathing, or other forms of noise modulation.

To minimize the risk of over-excursion in the woofer, **AcoustaMATE** incorporates a true over-excursion limiter which monitors the applied signal voltage to a loudspeaker. The limiting threshold is referenced to the woofer's maximum safe voltage limits as related by the loudspeaker's impedance curve. A three LED display, one for each channel, indicates SIGNAL PRESENT, HALF POWER (below excursion limit), and EXCURSION LIMIT.

Aside from installing the plug-in personality modules, there is no setup or calibration to perform; just connect it up and *let it play*. With ALTEC LANSING's **AcoustaMATE**, the attributes of full range high fidelity sound are restored. Let **AcoustaMATE** enhance your customers' sound.

SPECIFICATIONS

Measurement Conditions

1. 0 dBu = 0.775 V rms.
2. 0 dBm \equiv 1 mWatt = 0.775 V rms across 600 ohm load.
3. Measurements are referred to a 1 kHz, 0 dBu sine wave input signal unless noted.
4. Measurement bandwidth is restricted to 30 kHz unless noted.
5. No personality modules installed, enhancement disengaged.
6. No isolation transformers installed.

Number of Channels:

Two independent channels (common power supply)

Input Topology:

Electronically-balanced via "Superbal" differential input amplifier topology

Input Impedance:

30 k ohms balanced
15 k ohms unbalanced

Nominal Input Level:

0 dBu

Maximum Input Level:

+10 dBu

Output Topology:

Electronically-balanced via modified cross-coupled differential amplifier topology

Nominal Output Power (Ref. 1 kHz):

0 dBm, ± 0.5 dBm (+1 dBu, ± 0.5 dB with 15 k load)

Maximum Output Power:

+20 dBm

Output Source Impedance:

75 ohms

Minimum Load Impedance:

600 ohms

Frequency Response:

20 Hz - 20 kHz, ± 1 dB (Ref. 1 kHz, 0 dBm output power, 500 kHz measurement bandwidth)

(Total Harmonic Distortion + Noise):

< 0.1%, 20 Hz - 20 kHz (0 dBm output power)

Output Noise Power:

< -80 dBm A-weighted (77.5 μ V rms across 600 ohm load)

Dynamic Range:

> 100 dB (Peak signal to background noise)

SPECIFICATIONS (continued)

Crosstalk:

< -80 dBm at 1 kHz

Polarity:

A positive going signal applied to pin 2 of the XLR-F or the '+' terminal of the input barrier strip produces a positive going signal at pin 2 of the XLR-M and the '+' terminal of the output barrier strip.

Amp Sense Input Topology:

Electronically-balanced via "Superbal" differential input amplifier topology with diode protection

Amp Sense Input Impedance:

200 k ohms

Maximum Amp Sense Input Level:

+50 dBu (245 V rms)

Woofers Excursion Limiter Threshold:

0 dBu (internal)

Woofers Excursion Limiter Compression Ratio:

∞ :1 (fixed)

Woofers Excursion Limiter Attack Time:

\approx 5 msec (for a 10 dB input step above threshold)

Woofers Excursion Limiter Decay Time:

\approx 20 msec

Nominal Low Frequency Enhancement (LFX) Level:

Dependent upon plug-in personality module installed.
(Effective enhancement boost is typically less than 10 dB when LFX engaged.)

Nominal High Frequency Enhancement (HFX) Level:

Dependent upon plug-in personality module installed.
(Effective enhancement boost is typically less than 10 dB when HFX engaged.)

Protection:

Turn-on delay/auto-bypass circuitry

Switches (per channel):

- 1 - LFX In/Out switch (rear panel)
- 1 - HFX In/Out switch (rear panel)

Indicators (per channel):

- 1 - SIGNAL PRESENT indicator (green LED)
- 1 - HALF POWER indicator (yellow LED)
- 1 - EXCURSION LIMIT indicator (red LED)

Input Connectors (per channel):

XLR-F(female) and barrier strip

Output Connectors (per channel):

XLR-M(male) and barrier strip

Amp Sense Input Connector (per channel):

Barrier strip

Power Requirements:

100, 120, 220, or 240 V ac, 50/60 Hz, 10 watts

Internal Fuses:

Two T200 mA, 5 \times 20 mm (slow blow)
(The fuses are located on the secondary side of power transformer.)

Maximum Ambient Temperature:

50° C (122° F)

Dimensions:

Height: 1.75 in (4.4 cm)
Width: 19 in (48.3 cm)
Depth: 9.5 in (24.2 cm) from rear of rack ears to maximum depth

Net Weight:

6.3 lbs (2.86 kg)

Shipping Weight:

10 lbs (4.55 kg)

Color:

Black

Enclosure:

Rack mount chassis

Included Accessories:

- 1 - Hardware kit
- 1 - Power cord
- 1 - Set of International ac line voltage stickers
- 1 - Operating and Service Instructions

Optional Accessories:

- 15550A plug-in input isolation transformer
- 15560A plug-in output isolation transformer

Required Accessories (to be ordered separately):

- AM9815 Personality module for 9815-8A/M500 system,
- AM9820 Personality module for 9820-8A loudspeaker system,
- AM9850 Personality module for 9850-8A loudspeaker system,
- AM9872 Personality module for 9872-8F/M400 loudspeaker system.

For availability of other loudspeaker personality modules, consult the factory.

In a continuing effort to satisfy its customers, ALTEC LANSING Corporation may from time to time improve this product and its performance. Therefore, the specifications are subject to change without prior notice.

ARCHITECT'S and ENGINEER'S SPECIFICATION

The loudspeaker management system shall be operable from a 120 V ac, 60 Hz power feed. Each of its two channels shall operate independently and be capable of enhancing the low and high frequency response of a particular loudspeaker system while protecting the woofer from over-excursion. The resulting enhancement effect shall be to simulate a larger multi-way system naturally without the anomalies associated with constant or nearly constant dynamic processing.

Each channel shall have an amplifier sense input and internal provisions to accommodate an accessory plug-in loudspeaker personality module. The sense input shall be used to monitor the voltage applied to the loudspeaker. Each personality module shall be exclusive to a particular loudspeaker system, or family of loudspeaker systems, and shall contain a weighting network which models the inverse of the woofer's impedance versus frequencies of reproduction.

The device shall employ XLR and barrier strip connectors for all line level audio signal connections, and barrier strip connectors for the

amplifier sense inputs. Each channel shall have separate low and high frequency enhancement in/out switches. All connectors and switches shall be located on the rear panel.

The dual channel device shall meet the following performance criteria. Voltage gain (600 load): 1 (0 dB); Nominal input signal voltage: 0.775 V rms; Input impedance: 30 k balanced, 15 k unbalanced; Maximum signal input voltage: 2.45 V rms; Nominal output signal voltage: 0.775 V rms; Minimum load impedance: 600 ; Maximum output voltage: 7.75 V rms; Maximum amplifier sense input voltage: 245 V rms; Frequency response: 20 Hz 20 kHz, ± 1 dB; (THD+N): $< 0.1\%$, 20 Hz 20 kHz; Output noise power: < -80 dBm A-wtd; Dynamic range: > 100 dB; Operating temperature range: up to 50 °C (122 °F); Chassis type: rack mount; Dimensions: not larger than 1.75 inches in height by 19 inches in width and not deeper than 9.5 inches behind the mounting surface; Finish: black;

The loudspeaker management system shall be the ALTEC LANSING Model **1902A**.



a MARK IV company

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