



# PROGRAMMABLE AMPLIFIER MODULE (PAM)

V2250

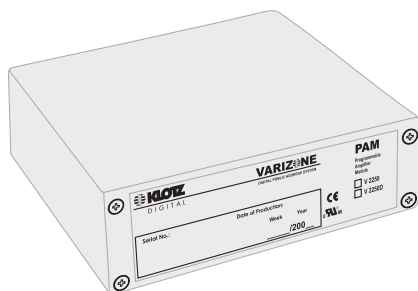


Figure 1: Programmable amplifier module (PAM)

## Description

The programmable amplifier module (PAM) is a basic component of the VARIZONE digital speaker system (DSS) bus. The PAM is installed and operated via DSS docking station model V2251/2. The PAM is available in the following versions:

- V2250, without delay function
- V2250D, with delay function to compensate for audio delays

The V2250D allows for the choice between the following delay functions:

- 255 samples
- 0 - 255 ms, adjustable in 1 ms steps
- 0 - 680 ms, adjustable in 4 ms steps

The chosen delay function is adjustable in the software.

The PAM has the following functions:

- Ability to select 2 of 8 available audio channels from the DSS bus
- Processing of the selected audio signal:
  - Equalization
  - Volume control
  - Delay control (only V2250D)
- Amplification of the selected audio signals for the transmission via speakers

## Features

- Amplifier module for the installation of up to 4 external speakers
- Power supplied to the PAM via the DSS bus
- 2-channel amplifier with 2 x 25W peak capacity and 2 x 12.5W continuous power
- Individual selection of 2 audio channels from the DSS bus
- Built-in 4-band equalizer and volume control for the processing of the selected audio signals
- Individual adjustment and monitoring of all installed PAMs via the Varizone system.
- Individual monitoring of up to 4 speakers per PAM via the Varizone system PC
- Delay functions to compensate audio delays (only V2250D)
- Easy installation, exchange and addressing of the PAM via docking station
- Status LED for the PAM on the docking station
- Card edge connector for the connection of the PAM to the docking station

## Architect & Engineer Specs

The specified DSS bus programmable amplifier module (PAM) shall be the Atlas Sound Varizone model V2250. Unit shall be specified for use with docking station model V2251/2. The amplifier module / docking station shall interface with the Atlas Sound VARIZONE DSS bus system. The VADIS control software shall determine audio assignment to the (2) separate V2250 amplifier inputs. These (2) inputs shall be selected from the (8) digital audio channels typically present on a DSS bus line. Each PAM shall provide speaker level output of 2 x 12.5W @ 8Ω. Each PAM shall typically provide power to (2) 8Ω loudspeakers per channel (4Ω total / channel). Monitoring of transducers shall via 20kHz pilot tone @ 1V switched via the VADIS software. DSS bus power consumption shall not exceed 2.5 Watts when muted, 2.9 Watts when unmuted, 7.1 watts @ 1W output / channel, or 35.5W @ full output power of 12.5W / channel. Amplifier dynamic range shall be 85dB minimum @ full 12.5W / channel output power (8Ω referenced, RMS, A-weighted). Connection to V2251/2 docking station shall be via 34-pin male edge connector. Dimensions shall be 5.51" (140.2mm) D x 1.62" (41.2mm) H x 5.2" (132mm) W. Weight shall be 1lb (460g).

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## Specifications

Connectors	34-pin card edge connector, male
Output	2 channels, each of them connectable to max. of 2 speakers
Selectable audio channels	2 out of 8 available on the DSS bus
Supply voltage	48V typ., 55V max., 28V min., provided via DSS bus
Power Consumption	2.5W @ muted 2.9W @ unmuted, no input signal 7.1W @ 2 x 12.5W output 35.5W @ 2 x 12.5W output
Output power	2x 12.5W @ 8Ω load
Sample frequency	48kHz, locked to VADIS system
Dynamic range	88dB typ., 85dB min. @ 2 x 12.5W @ 8Ω ref., RMS, A-weighted
Frequency response	+0.2/-0.5dB @ 20Hz - 5kHz, ref. 1kHz, 1W @ 8Ω +0.2/-0.5dB @ 20Hz - 10kHz, ref. 1kHz, 1W @ 8Ω +0.2/-0.5dB @ 20Hz - 20kHz, ref. 1kHz, 1W @ 8Ω +0.2/-0.5dB @ 20Hz - 5kHz, ref. 1kHz, 1W @ 4Ω +0.2/-0.5dB @ 20Hz - 10kHz, ref. 1kHz, 1W @ 4Ω +0.2/-5dB @ 20Hz - 20kHz, ref. 1kHz, 1W @ 4Ω
THD + N	0.1% typ., 0.2% max. @ 1W @ 8Ω, 1kHz 0.1% typ., 0.25% max. @ 1W @ 8Ω, 20Hz-20kHz 0.1% typ., 0.3% max. @ 12.5W @ 8Ω, 20Hz-20kHz
Minimum load	4Ω per channel 8Ω per speaker
Speaker monitoring	Monitoring of up to 4 speakers with 20kHz pilot tone
Pilot tone level	1V per speaker, RMS
Anti clipping circuit	Prevents output from clipping if supply voltage drops
Delay (optional)	225 samples max. 0 ms min., 255ms max., adjustable in 1ms steps 0 ms min., 680ms max., adjustable in 4ms steps
Ambient temperature limits	0° C min., 50° C max, for the operation of the device
Meantime between failure	• V2250 285 k hours typ. @ ≤ 50% load and 50° C ambient temp 208 k hours typ. @ max. load and 50° C ambient temp • V2250 246 k hours typ. @ ≤ 50% load and 50° C ambient temp 200 k hours typ. @ max. load and 50° C ambient temp calculated on the basis of the data sheet values of the components or according to MIL 217F
Dimensions	Depth: 140.2mm/5.51" Height: 41.2mm/1.62" Width: 132.1mm/5.2"
Weight	460 grams typical/1 lb

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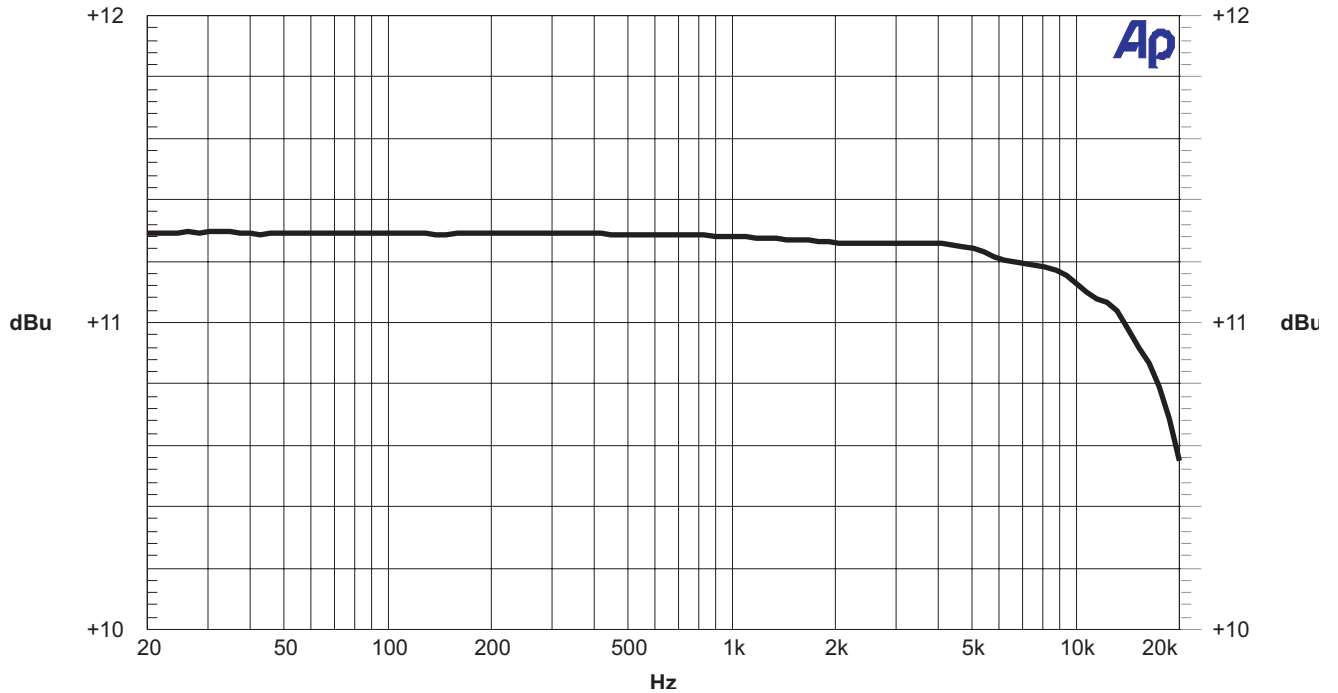
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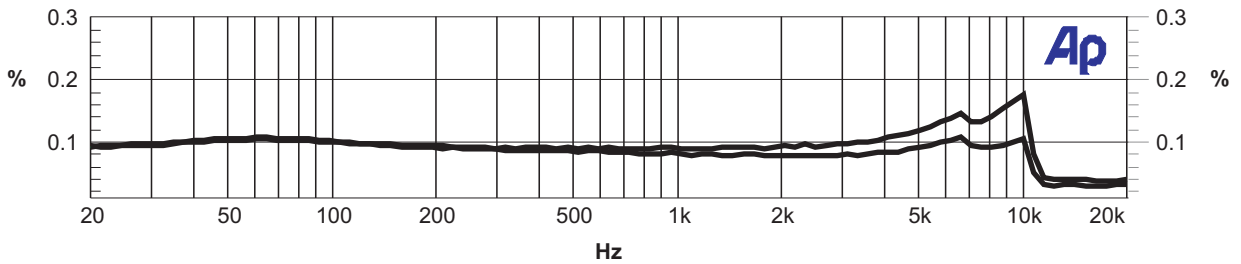
# PROGRAMMABLE AMPLIFIER MODULE (CONTINUED)...

V2250

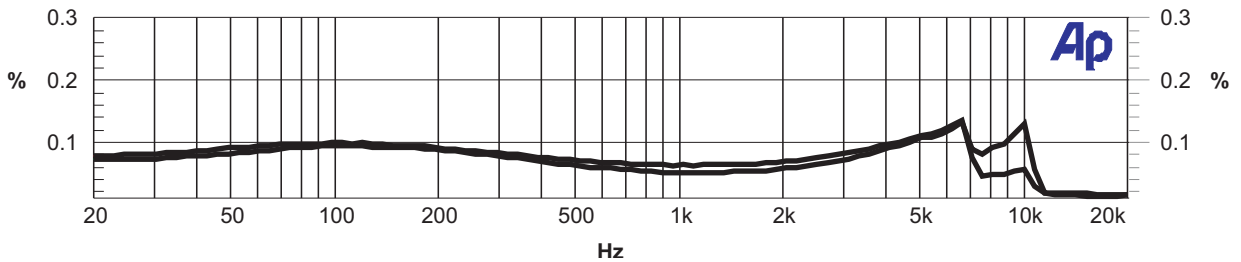
Typical frequency response at 1W / 8Ω load:



Typical THD + N at 2 x 1W, 8Ω load:



Typical THD + N at 2 x 12.5W, 8Ω load:



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Front view



Figure 2: PAM, front view

Rear view

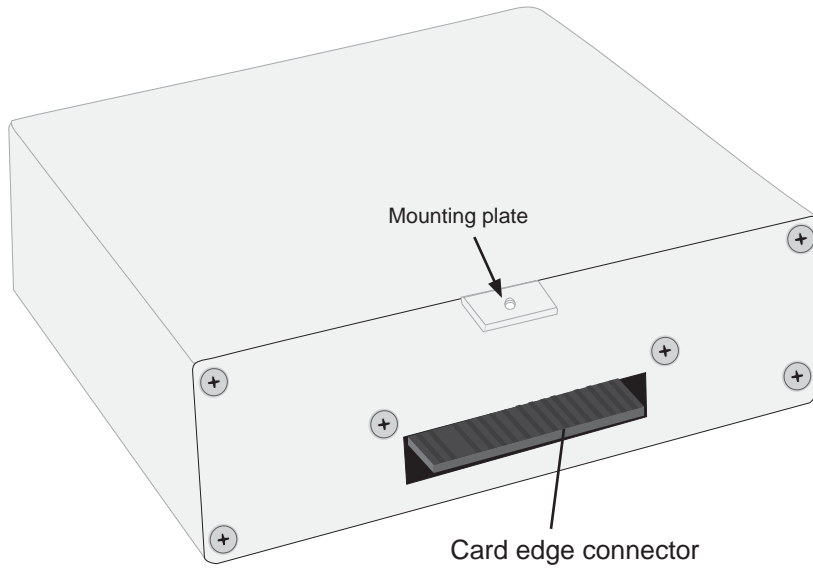


Figure 3: PAM, rear view with card edge connector and mounting plate

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