AMALTHEA 1.0
Quick User Manual

Amalthea 1.0 is a linear amplifier for piezoelectric speakers. Its frequency range goes up to 80 kHz, and it can drive up to 40 Ganymede at once.

Features

- Low distortion
- Based on TI LM1875
- Constant DC output for speaker pre-excursion
- Frequency range up to 80 kHz

Package Content

- Amalthea amplifier

Setting up the System

- Provide power to Amalthea using a 30 V (recommended) DC connector over the POWER plug. This can be done via a lab-supply or a simple DC supply

- Connect an audio source (signal generator, phone, mp3 player or others) to the INPUT plug (BNC) of the device

- Connect USound's test box Carme (not included) to the OUTPUT (blue and green connectors). Make sure to connect the blue connector to the bottom electrode (marked with the symbol +), and the green connector to the top electrode (marked with the symbol –) of the speaker. The voltage potential at the blue output is higher than at the green one. This is the correct bias voltage for the MEMS speakers.

Usound provides the speaker box Carme designed for testing the performance of our Ganymede MEMS Speakers. Should you require assistance or further information, please contact a USound Sales representative.

Performance Requirements

Supply voltage (V_{CC})	30 V_{DC} recommended
Power consumption* (no input; V_{CC} = 30 V)	< 1.5 W (< 50 mA)
Power consumption* (650 mV_{rms}; V_{CC} = 30 V)	< 3.9 W (<130 mA) with bandwidth below 20 kHz
Max. input voltage (AC)	650 mV_{rms} (920 mV_P)
DC at 'speaker output'	V_{CC}/2 from the DC supply (recommended: V_{CC} = 30 V)
Gain at 1 kHz	15 (23.5 dB)
Frequency response* (-3 dB)	25 Hz - 80 kHz
$THD_{typical}$ (100 Hz – 20 kHz; V_{CC} = 30 V)	< 0.01 %
THD_{max} (< 650 V_{rms} at 'audio input'; V_{CC} = 30 V)	< 0.1 %

*Driving one Ganymede MEMS speaker.