PA-138 Linear Power Amplifier

State of the art linear technology brings quiet, direct coupled capability to vibration and acoustic test systems.

GENERAL DESCRIPTION

The Labworks PA-138 Linear Power Amplifier is a high quality, air-cooled, direct-coupled audio amplifier primarily intended for use with small vibration systems. Although this amplifier has been designed to directly drive low impedance loads, it can be used in any application requiring continuous duty high quality audio power.

PA-138 Amplifiers feature protection from both over current and over temperature insuring long term reliability. The amplifier has full interlock capabilities as well as peak voltage and RMS current bar graphs to monitor output.

Two operational modes are incorporated in the design. These amplifiers can be used as either a wide-band, highly damped voltage source, or as a high impedance current source. DC and AC coupled signal inputs are provided. PA-138 Amplifiers are designed for standard 19 in. rack mounted installation and require 100, 120, 220 or 240V, 48 to 60 Hz power.

FEATURES

- Linear output stage provides low noise and distortion.
- Automatic over temperature and over current protection.
- Direct coupled input and output allows DC operation.
- Two operational modes, voltage or current source.
- External interlock circuitry.
PA-138 SPECIFICATIONS*

Output Voltage (continuous)
- 10 Hz to 20 KHz
  - open circuit: 31.0 V rms
  - 4Ω load: 26.0
  - 2Ω load: 23.5
  - 1Ω load: 20.0
- DC to .1 Hz
  - open circuit: 45.0 Vdc/pk
  - 4Ω load: 36.5
  - 2Ω load: 22.0
  - 1Ω load: 11.0

Random Voltage Output
- 2.5 sigma peak volts
  - open circuit: 18.0 V rms
  - 4Ω load: 16.0
  - 2Ω load: 15.0
  - 1Ω load: 14.0
- 3.0 sigma peak volts
  - open circuit: 15.0 V rms
  - 4Ω load: 13.0
  - 2Ω load: 12.5
  - 1Ω load: 11.5

Maximum continuous dissipation
- Ambient Temp = 40°C 400W
  - 50 200
  - 60 0

Frequency response (DC coupled input)
- DC to 10 KHz: -0.6 dB
- DC to 20 KHz: -2.5
- AC coupling @ 1.0 Hz: -0.5

Slew rate: 2 V/µsec

Harmonic distortion
- (10V, DC-10k): <0.65% @ 1Ω

Signal/noise ratio (ref 20V out): 100 dB minimum

Input impedance
- DC coupled: 10 kΩ
- AC coupled: 47 uF in series with 10 kΩ

DC offset: 5 mV max

Voltage mode gain: 48 (34 dB) max

Current mode gain: 22 Amps/Volt max

Voltage source regulation: <0.1 dB (~ 1Ω load, 30 Hz/10 V rms)

Current source regulation: <0.1 dB (0-2Ω load, 30 Hz/10 A rms)

Front panel controls: Power, mode switches, gain adjust

Front panel indicators: Internal power, interlock trip

Front panel metering
- Type: (2) 19 seg. horiz. bar graphs
- Scale: Voltage 0-40V pk, Current 0-16 A rms
- Resolution
  - Peak voltage: 5% of full scale
  - True rms current: 5% of full scale
  - Accuracy (voltage & current): ±5% absolute

Interlock circuit
- Type: <1 Vdc= fault or N.C. switch
- Response time: 3 ms. max
- Action: Output drives to ground
- Reset: Gain pot full down or > 1.5V @ RST
- Indicator: Flashing front panel "Trip" light

Cooling: 2-speed fans

Noise level: low/high speed: <45 dB/<55 dB
(switches @ approx. 1/2 diss.)

Self protection: Over current, over temperature

Line protection
- Dual line fuses: (10A @ 100, 120 Vac)
- (5A @ 220, 240 Vac)

Input power
- 1.000 VA max
- Voltage: 100, 120, 220 or 240 Vac
- Frequency: 48 to 62 Hz

Dimensions: 3.5" H x 19" W x 13" D

Weight: 24 lbs

*Specifications subject to change. Consult factory for latest specifications.

PERFORMANCE GRAPHS