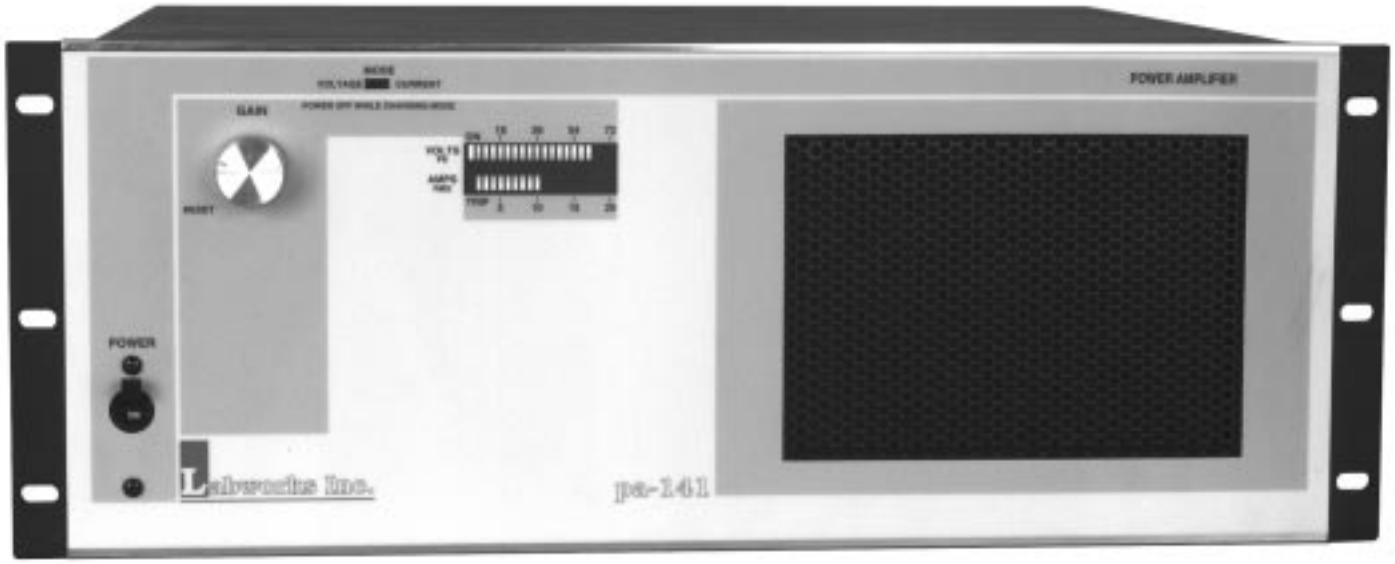
PA-141 *Linear Power Amplifier*



High quality audio power for vibration test systems.

GENERAL DESCRIPTION

The Labworks PA-141 Linear Power Amplifier is a high quality, air-cooled, direct-coupled audio amplifier primarily intended for use with 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.

There are two operational modes. The amplifier 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.

In order to insure long term reliability, the PA-141 features protection from both over current and over temperature.

Full interlock circuitry is also included. Peak voltage and RMS current bar graphs monitor output conditions.

Optional, internal DC field power supplies are available for use in conjunction with Labworks Shakers. These options provide the convenience of a single chassis power source, as well as fully integrated power-up and cooling interlock circuitry with the power amplifier. Switched 115 Vac power is provided for shaker cooling blower and control instrument requirements.

The PA-141 is designed for standard 19 in. rack mounted installation and can be operated on 100, 120, 200, 220 or 240V, 48 to 62 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.
- External interlock circuitry.
- Two operational modes, voltage or current source.
- Optional internal shaker field supplies.

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PA-141 SPECIFICATIONS*

Output Voltage (continuous)		
10 Hz to 20 KHz		
open circuit	62.0 V rms	
4Ω load	49.0	
2Ω load	40.0	
1Ω load	20.0	
DC to .1 Hz		
open circuit	87.5 Vdc/pk	
4Ω load	69.0	
2Ω load	56.5	
1Ω load	28.0	
Random Voltage Output		
2.5 sigma peak volts		
open circuit	36.0 V rms	
4Ω load	30.0	
2Ω load	28.0	
1Ω load	20.0	
3.0 sigma peak volts		
open circuit	30.0 V rms	
4Ω load	25.0	
2Ω load	23.0	
1Ω load	20.0	
Maximum continuous dissipation		
Ambient Temp =	40°C	900W
	50	450
	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	6.0 V/µsec	
Harmonic distortion		
(10V, DC-10k)	<0.65% @ 1Ω	
Signal/noise ratio		
(ref 50V out)	100 dB minimum	
Input impedance		
DC coupled	10 kΩ	
AC coupled	47 uF in series with 10 kΩ	
DC offset		
Voltage mode	5 mV max	
Current mode	3 mA max	
Voltage mode gain	96 (40 dB) max	
Current mode gain	22 Amps/Volt max	
Voltage source regulation	<0.1 dB (∞ - 2Ω load, 30 Hz/20 V rms)	
Current source regulation	<0.1 dB (0-2Ω load, 30 Hz/10 A rms)	
Front panel metering		
Type	(2) 19 seg. horiz. bar graphs	
Scale		
Voltage	0-72V pk	
Current	0-20 A rms	
Resolution		
Peak voltage	5% of full scale	
True rms current	5% of full scale	
Accuracy (voltage & current)	±5% absolute	

Front panel indicators	Internal power, interlock trip
Front panel controls	Power switch, mode switch, gain adjust
Interlock circuit	
Type	Logic <1 Vdc or switch open = fault
Response time	3 ms. max
Action	Output drives to nil
Reset	Gain pot full down or > 1.5V @ RST
Indicator	Flashing front panel "Trip" light
Cooling	2-speed fan
Noise level: low/high speed	<53 dB/<67 dB (switches @ approx. 1/2 diss.)
Self protection	Over current, over temperature
Line protection	
Dual circuit breaker	15A
115 Vac convenience output	Std. Duplex (USA)
PA-141	3A
PA-141-127	20A
PA-141-140	12A
Optional DC shaker field power supplies	
141-127	32V, 28A DC Nom.
141-140	12V, 12A DC Nom.
Input power	
PA-141	2,000 VA max
PA-141-127 or -140	3,000 VA max
Voltage	100, 120, 200, 220 or 240 Vac
Frequency	48 to 62 Hz
Dimensions	7.0" H x 19" W x 17" D
Weight	
PA-141 (PA-141-127 or-140)	48 lbs (73 lbs)

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

PERFORMANCE GRAPHS