

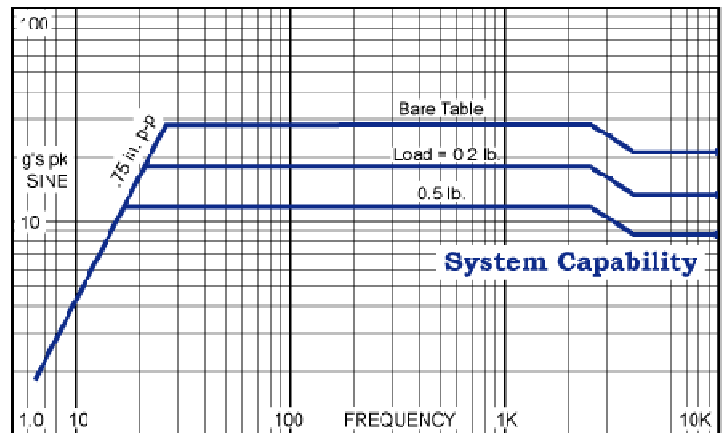
LW161.151-10 Modal Test System



The LW161.151-10 system utilizes the compact Labworks MT-161 thruster and convection cooled PA-151 linear power amplifier to form our smallest dedicated modal test system. The thruster's full 0.75 inch stroke capability, low suspension spring rate and light weight armature makes this system ideal for most small modal test applications. The thruster features a through hole, and a single collett or thread load attachment to accommodate both tension wire and stinger modal testing. The convection cooled PA-151 amplifier is direct coupled to the shaker to give the maximum performance at both low and high frequencies and can be easily switched from voltage source mode to current source mode for force input testing applications. The standard voltage-proportional-to-current amplifier signal output facilitates servoed test operation. Dual bar graphs display the system operating levels and internal and external interlocks help protect the system from accidental abuse.

General Specifications

Sine Force:	10.0 lbf force pk
Random Force:	7.0 lbf rms random
Shock Force:	21.0 lbf pk shock
Frequency Range:	DC to 10,000 Hz
Max. Acceleration:	28 g pk, bare table 18 g pk, 0.2 lb. load 11.5 g pk, 0.5 lb. load
Max. Displacement:	0.75 inch pk-pk, bare table
Cooling:	Amplifier: natural convection Shaker: natural convection
Power Requirements:	300 VA @95-125, 190-250, 1Ø, 50/60 Hz.



System Components*

- MT-161-4 Electrodynamic Shaker
- PA-151 Linear Power Amplifier
- MS-129-161 Modal Stinger Kit
- Interconnect Cables and Hoses

System Options*

- Amplifier Rack Mount Brackets
- VL-145 1 Ch. Digital Controller
- SC-121 Sine Servo Controller
- SG-135 Manual Sine Controller
- Rack Cabinet

*See individual components for more detailed specifications and options.



Standard trunnion allows shaker operation in any position from vertical to horizontal. The hook-up requirements on the PA-138 are simple, making the system portable.

MT-161 Modal Thruster



- 25 pounds pk sine force
- .75 inch stroke
- .005_i± to .125_i± dia. Collet, #10-32, M5x.75 & 5/16-18 Thds.
- Stinger and Wire Through-Hole
- Low stray magnetic field
- Frequency range² DC-10,000 Hz.
- Trunnion mounting base

General Specifications

Performance

Sine force	
Natural cooling	13 lbf pk
With blower	50 lbf pk
Max displacement	
Continuous pk-pk	.70 in
Between stops	.75 in
Max velocity	120 ips pk
Max Acceleration	200 gpk (resonant load)
Frequency Range ²	DC-10,000 Hz
Fundamental Resonance ²	9,000-10,000 Hz
Stray magnetic fields	<10 gauss @ 1.5"
Cooling @>13lbf	30 cfm /22 in H ₂ O

Physical

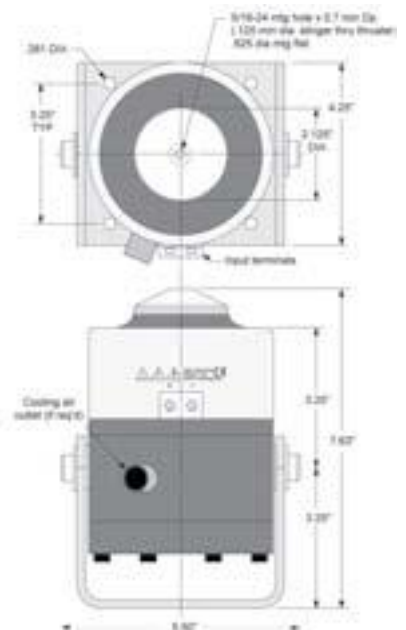
Armature weight	0.35 lb
Suspension stiffness	15 lb/in
Dimensions	7.13" H x 4.8" W x 4.25" D
Shaker weight	11 lbs

The MT-161 thruster's compact size, long stroke and lightweight armature make it well suited for all types of modal testing. The thruster has a compression collet and features a central through-hole suitable for modal stinger and pre-tensioned wire testing applications. The standard shaker trunnion allows the shaker to be operated in any axis from vertical to horizontal. The trunnion base also facilitates bolting the shaker in place for rigid applications or the use of adjustable mounting feet.

Reliability is assured through the use of the latest composite materials in the unique, all flexure, armature suspension design. The design provides for low axial stiffness while retaining high lateral stiffness and has no rolling or sliding components to wear out and/or produce unwanted harmonics or distortion. When combined with the correct Labworks linear power amplifier, the system is unmatched for reliability, performance and cost.

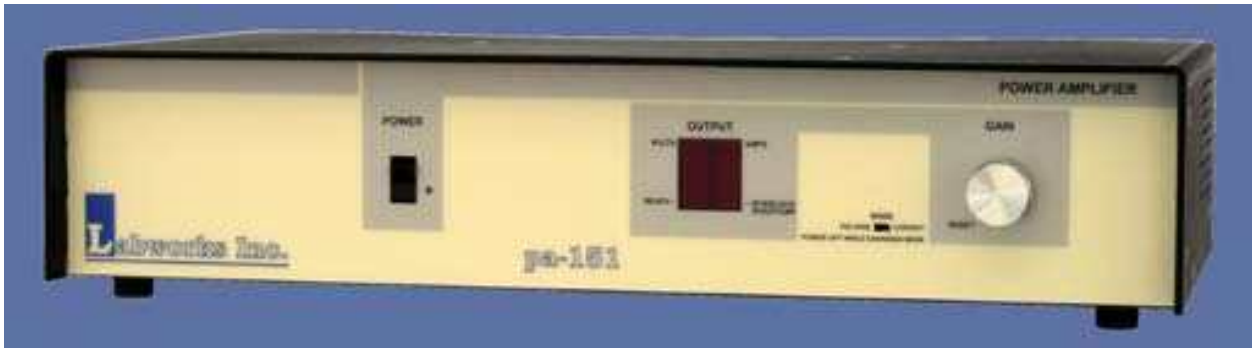
Options

- Vibration isolation mounts. Modal stingers and mounts.
- Cooling blower required for operation above 13 lbf.



¹ Please see systems ratings for additional specifications.
² Load dependent.
 Specifications subject to change.

PA-151 Linear Power Amplifier

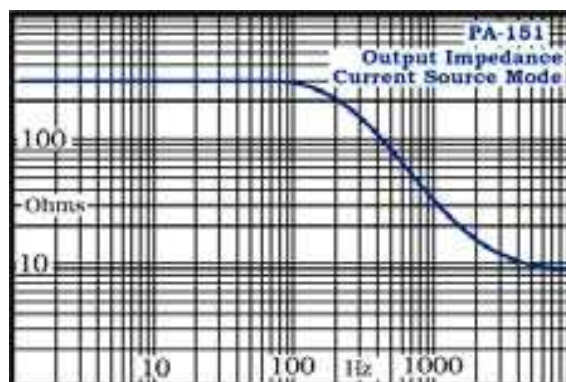
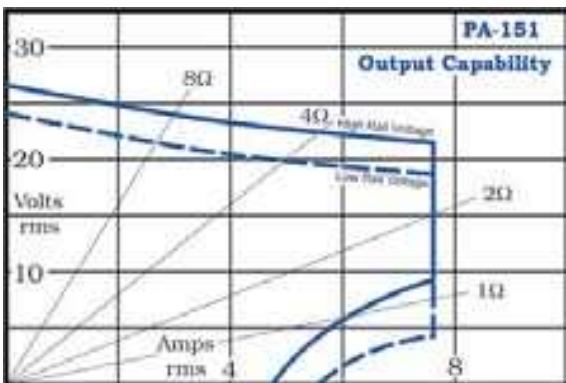


- Output: 25V or 20V, 180 VA
- Direct coupled linear output
- Output voltage and current meters
- Voltage and Current source modes
- Convection cooling, no fans
- Light weight, desktop amplifier



The Labworks PA-151 Linear Power Amplifier is a high quality, convection-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-151 Amplifiers feature protection from both over current and over temperature insuring long term reliability. The amplifier circuitry uses soft start technology for load protection and has external interlock capabilities as well as output voltage and current bar graphs. A voltageproportional-to-output-current signal output is provided for modal test and other applications requiring force monitoring. A unique dynamic output drive circuit provides high random peak output current for increased random and shock vibration system



General Specifications*

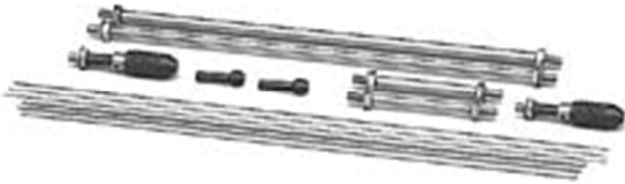
Output voltage	25 or 20 V rms
Output current	7.5 A rms
Max. cont. dissipation	180 W
Frequency response	Voltage Source: DC to 10 KHz Current Source: DC to 2 KHz
Max. voltage gain	-1 dB
Max. current gain	-2 dB @ 4Ω
Cooling	28 dB
Input impedance	22 A/V
Meters	Natural convection
Volts	10 kΩ
Amps	9 segment bar graph
Interlock circuit	9 segment bar graph
External, user	F.C. switch or TTL, F.C.
Input power	300 VA max
Voltage	100-120, 200-240 V, 1Ø
Frequency	48 to 62 Hz
Dimensions	3.5" H x 17" W x 13" D
Weight	19 lbs

* Switch selectable internal rail voltage allows impedance matching to load requirements
* Specifications subject to change. Call factory for latest specifications.

Amplifier Options

- Rack panel cabinet
- BNC signal cables

MS-129-XXX* Modal Stinger Kit



Rod Collet Chuck:	#10-32 x Collet
Collets:	.03, .06 and .125 in.
Threaded stingers (1 ea.):	
3/16 in. Dia. Stainless steel	3 in. and 10 in. long
1/4 in. Dia. Stainless steel	3 in. and 10 in. long
Rod stingers (3 ea.):	
.062 in. Dia.	11 in. long
.093 in. Dia.	11 in. long

*Specify Labworks Inc. shaker model number.