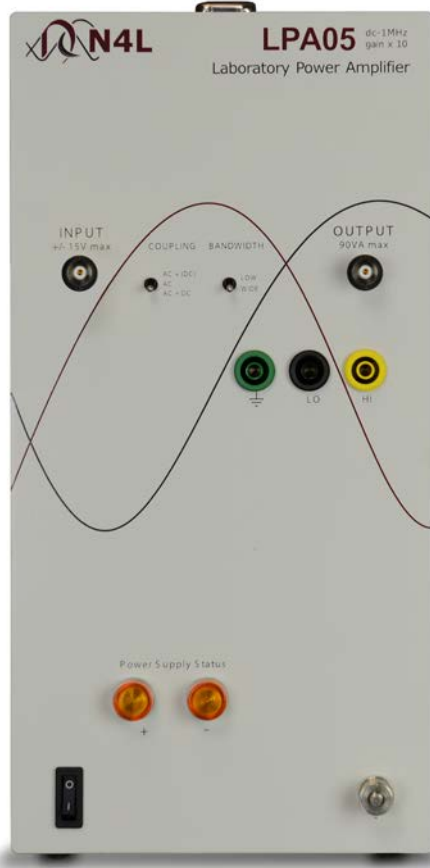


Laboratory power amplifier **LPA05**



Features:

- DC and AC wide bandwidth
- Switch selectable coupling options: AC, AC+DC or AC with reduced DC
- Fixed x10 Gain
- Switch selectable bandwidth
- High slew rate
- Isolated BNC or 4mm output sockets
- $\pm 40V$ peak, 3A rms @ dc-500kHz
 $\pm 20V$ peak, 1A rms @ 1MHz
(LPA05A resistive load)
- $\pm 18V$ peak, 5A rms @ dc-500kHz
 $\pm 18V$ peak, 2A rms @ 1MHz
(LPA05B resistive load)
- Unconditionally stable into any load
- Isolated from ground to prevent earth loops
- Robust metal enclosure

LPA05A & LPA05B provide wide bandwidth signal amplification at up to 8A peak, extending the range of industrial and laboratory applications into which the LPA series can be used.

LPA05: High frequency, high current testing of very low impedance loads, follow guidance in user manual if DUT impedance is below 5 ohms

-Also in the LPA range -

LPA01: High frequency, testing of low impedance loads at up to 1Apk
e.g. wound components

LPA400: High voltage, high frequency testing and calibration
Driving high voltage actuators (e.g. piezo) up to $\pm 400V$



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The LPA range of power amplifiers from N4L are robust and reliable for use in a variety of industrial and laboratory applications. Designed originally for use with the PSM* range Phase Sensitive Multimeters, they can also be used anywhere where there is a need to boost a signal either in voltage or current.

They combine dc accuracy with wide bandwidth to faithfully reproduce complex waveforms, driving loads that may be capacitive, inductive or resistive.

Optionally, the dc component can be eliminated with ac coupling, or can be reduced with ac+(dc) coupling. To limit high frequency noise, the input bandwidth can be reduced with a linear phase, 2nd order, low pass filter for low frequency applications.

Specifications:

Parameter	LPA05A	LPA05B
Output Voltage	40V pk-pk (14Vrms) @ 1MHz	36V pk-pk (12Vrms) @ dc-1MHz
	80V pk-pk (28Vrms) @ dc-500kHz	
Max ac output current	3A rms 5A pk	5A rms 8A pk
Max dc output current	2A	4A
Input connector	isolated BNC	
Input impedance	10kΩ	
Peak input voltage	±4V	
Input common mode range	±40V	
Input offset voltage	5mV (max) 1mV (typ)	
Input coupling	ac, ac+dc, ac+(dc)	
AC coupling filter -3dB	16Hz	
(dc) gain factor	0.1	
Low B/W filter attenuation	40 dB/decade	
Low B/W filter type	linear phase	
Gain	x10	
Slew rate	120 V/us	
Output connector	isolated BNC + 4mm safety connectors	
Output power	90 VA	
Operating temperature range	0 - 40 °C	
Size	30 x 15 x 25 cm	
Weight	6 kg (approx)	
Power source	90-265V 45-63Hz	
Power consumption	150 VA	



All specifications at 23°C +/- 5°C

These specifications are quoted in good faith but Newtons4th Ltd reserves the right to amend any specification at any time without notice

* The PSM range includes the PSM1700, PSM1735, PSM2200 and PSM2201 that incorporate gain/phase analysis, LCR meter, phase angle voltmeter, wideband true rms meter, Power analyser, harmonic analyser and more.

The LPA range is designed & manufactured in the UK by Newtons4th Ltd.

LPA01

Laboratory power amplifiers

LPA400



Features:

- DC accurate and wide bandwidth
- Switch selectable coupling options: AC, AC+DC or AC with reduced DC.
- Switch selectable precision gain settings.
- Switch selectable bandwidth.
- High slew rate.
- 1A Peak output current @ up to $\pm 14V$ peak (LPA01).
- $\pm 400V$ peak, 50mA rms (LPA400).
- $\pm 180V$ peak, 100mA rms (LPA400B).
- Unconditionally stable into any load.
- Isolated from ground to prevent earth loops.
- Robust metal enclosure
- Will fit underneath QuanteQ or Vektor to boost output capability.

LPA01 & LPA400 are the first in a range of amplifiers developed to provide high accuracy amplification in an industrial or laboratory environment.

LPA01: High frequency, high current testing of wound components.
High frequency excitation of servos and actuators up to 1A.

LPA400: High voltage, high frequency calibration.
Driving high voltage actuators (e.g. piezo) up to $\pm 400V$.



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Specifications:

Parameter	LPA 01	LPA400A	LPA400B	Units
Input connector	isolated BNC	isolated BNC	isolated BNC	
Input impedance	10k	10k	10k	Ω
Peak input voltage	±12 (±14)*	±8	±3.6	V
Input common mode range	±40	±40	±40	V
Input offset voltage	5	5	5	mV (max)
	1.5	1.5	1.5	mV (typ)
Input coupling	ac, ac+dc, ac+(dc)	ac, ac+dc, ac+(dc)	ac, ac+dc, ac+(dc)	
AC coupling filter –3dB	16	16	16	Hz
(dc) gain factor	0.1	0.1	0.1	
Full power bandwidth	1M @ 24V pk-pk	100k @ 800V pk-pk 1MHz @ 80V pk-pk	200k @ 360V pk-pk 1MHz @ 80V pk-pk	Hz
Low bandwidth –3dB	80k	80k	80k	Hz
Low bandwidth filter attenuation	40	40	40	dB/decade
Low bandwidth filter type	linear phase	linear phase	linear phase	
Gain options	x1, x4, x10	x50, x200, x500	x50, x200, x500	
Low frequency gain accuracy	0.2*	0.1	0.1	%
Output connector	isolated BNC	isolated BNC	isolated BNC	
Continuous output current	0.7	0.05	0.1	A rms
Peak output current	1	0.075	0.15	A pk
Peak output voltage	±12 (±14)*	±400	±180	V
Slew rate (Typical)	600	350	350	V/us
Operating temperature range	0 - 40	0 - 40	0 - 40	°C
Size	8.5 x 15 x 25	8.5 x 15 x 25	8.5 x 15 x 25	cm
Weight	2	2.5	2.5	kg (approx)
Power source	90 – 265 Vrms @ 47 – 63 Hz	230V±10%, 50Hz (UK) 115V±10%, 60Hz (USA)	230V±10%, 50Hz (UK) 115V±10%, 60Hz (USA)	
Power consumption	40	45	45	VA (max)

***THE LPA01 CAN OPERATE AT PEAK INPUT AND OUTPUT VOLTAGES OF UP TO +/- 14V.
ABOVE +/- 12V THE LOW FREQUENCY GAIN ACCURACY IS AS FOLLOWS:
x1 GAIN: 1% x4 GAIN: 3% x10 GAIN: 5%**

Notes:

All specifications at 230V, 50Hz, 23°C unless otherwise stated.

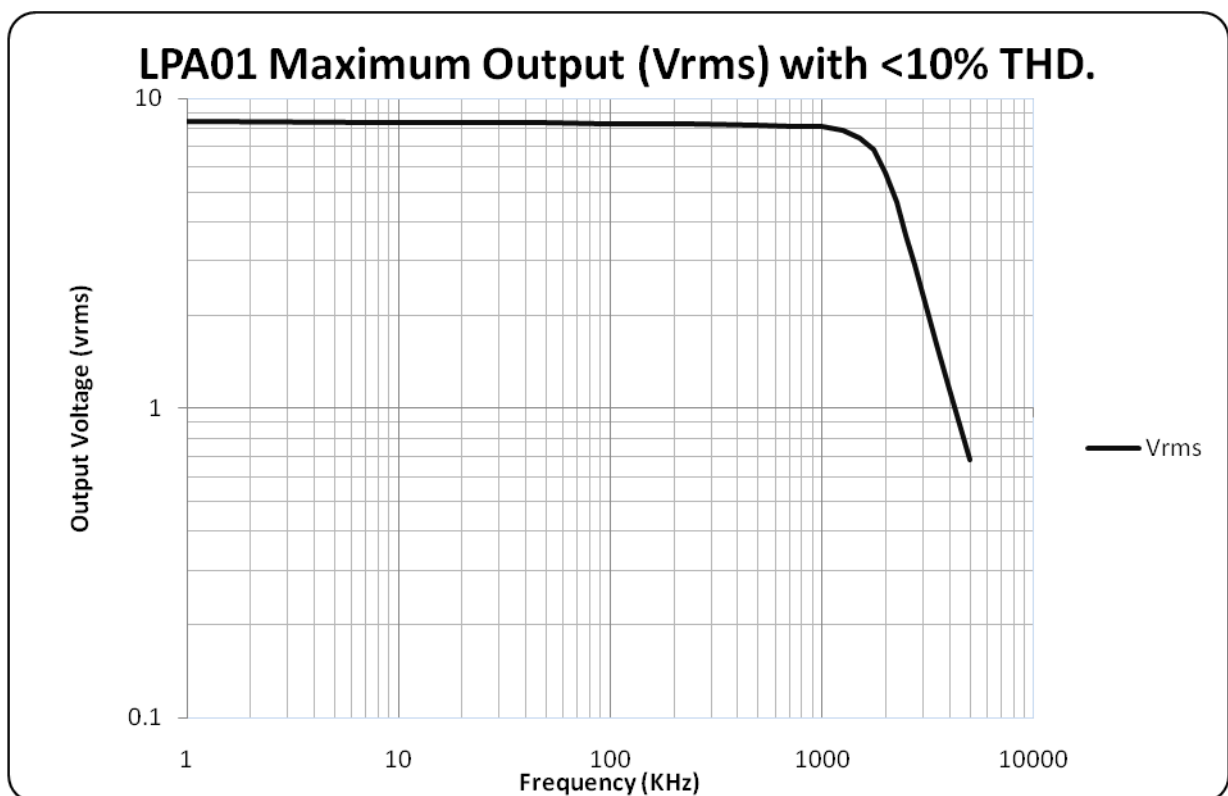
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Total Harmonic Distortion:

For frequencies up to 1MHz, Total Harmonic Distortion is typically less than 0.6%.

This graph demonstrates the effect of Total Harmonic Distortion on the Maximum Output Voltage of the LPA01 amplifier at higher frequency levels up to 5MHz.



The PSM range includes the PSM1700, PSM1735, PSM2200 and PSM2201 that incorporate gain/phase analysis, LCR meter, phase angle voltmeter, wideband true rms meter, Power analyser, harmonic analyser and more.

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LPA01

Laboratory power amplifiers

LPA400



Features:

- DC accurate and wide bandwidth
- Switch selectable coupling options: AC, AC+DC or AC with reduced DC.
- Switch selectable precision gain settings.
- Switch selectable bandwidth.
- High slew rate.
- 1A Peak output current @ up to $\pm 14V$ peak (LPA01).
- $\pm 400V$ peak, 50mA rms (LPA400).
- $\pm 180V$ peak, 100mA rms (LPA400B).
- Unconditionally stable into any load.
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- Robust metal enclosure
- Will fit underneath QuanteQ or Vektor to boost output capability.

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Specifications:

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Input coupling	ac, ac+dc, ac+(dc)	ac, ac+dc, ac+(dc)	ac, ac+dc, ac+(dc)	
AC coupling filter -3dB	16	16	16	Hz
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Low bandwidth filter attenuation	40	40	40	dB/decade
Low bandwidth filter type	linear phase	linear phase	linear phase	
Gain options	x1, x4, x10	x50, x200, x500	x50, x200, x500	
Low frequency gain accuracy	0.2*	0.1	0.1	%
Output connector	isolated BNC	isolated BNC	isolated BNC	
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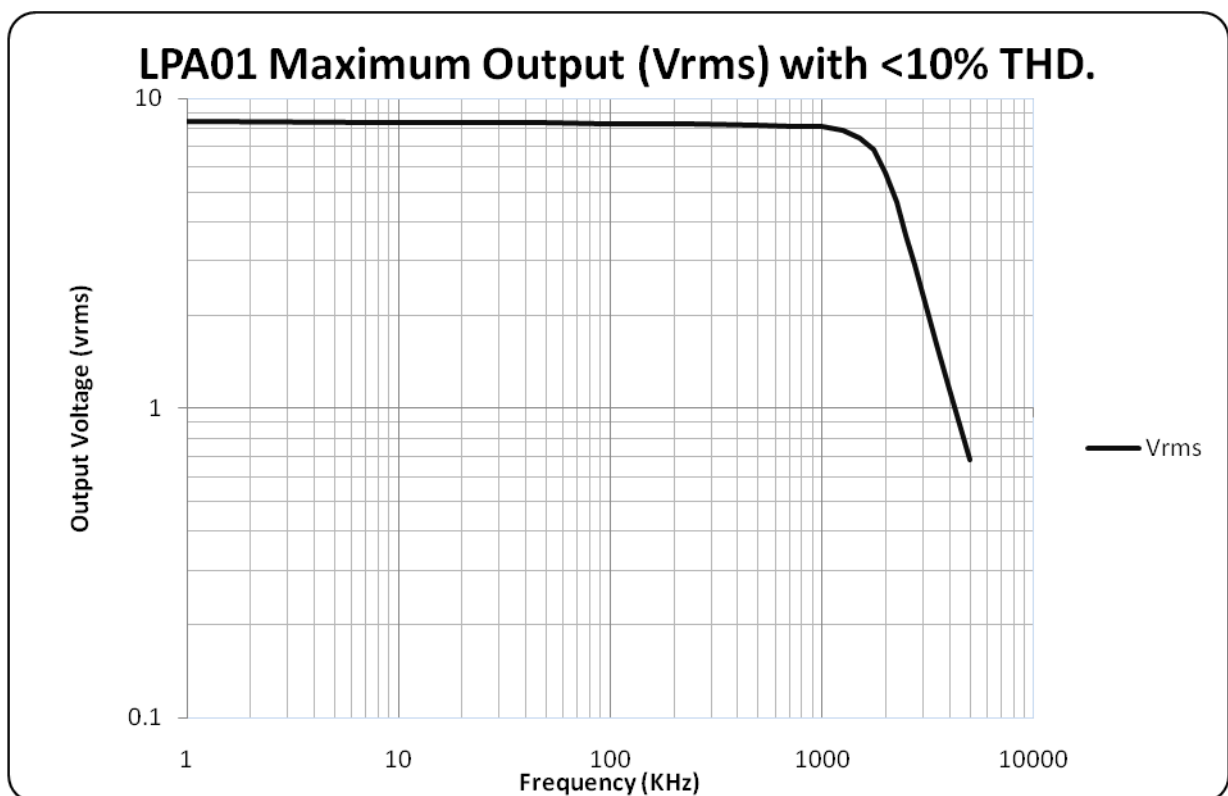
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