

# BROADBAND LINEAR AMPLIFIER

## Model P100 (preliminary)



HIGH OUTPUT CURRENT

$\pm 50\text{ V } 2\text{ A}$

GAIN

10x

HIGH SLEW RATE

$20\text{ V}/\mu\text{s}$

BROADBAND

DC to ca 150 kHz

## GENERAL DESCRIPTION

The **P100** is a general purpose linear amplifier with high voltage and high output current. Intended applications are piezoelectric positioning, electrostatic transducers and other high voltage instrumentation.

The **P100** amplifier has a fixed gain of x10 and the input resistance of 1 M $\Omega$ . The input amplitude should be within -10...+10 V giving output voltage in the range -100...+100V. Higher input voltage will be limited to -10...+10 V range by the input protection circuit. Above ca 300% overvoltage an input microfuse might be blown (a spare fuse is provided on the amplifier's printed-circuit board).

The maximum power dissipation of the amplifier is 125W and the maximum output current is ca 1A. The slew rate is ca 20 V/ $\mu$ s.

## IMPORTANT NOTES

Due to the high dissipated power the amplifier requires good ventilation. Air intake (at the bottom of the case) and the fan (on the back) should never be obstructed.

The instrument cannot be powered from a DC-AC converter nor from a solid-state AC generator with non-sinusoidal output.

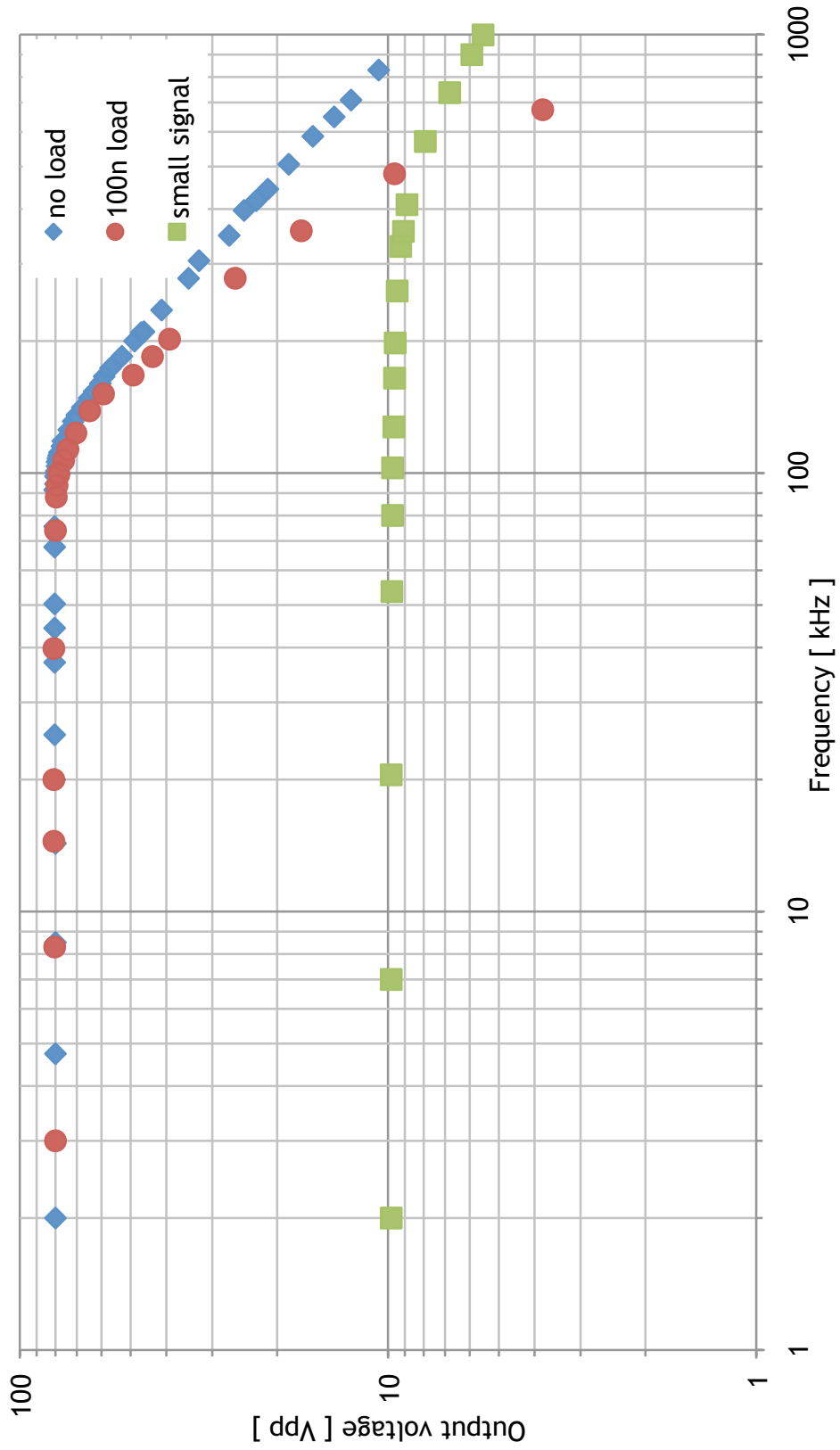
Inside the amplifier case exist dangerous voltage levels.

Never connect the output to the input of the amplifier! The input fuse will be blown immediately.

## LOAD

**P100** is designed for mainly resistive and capacitive load. Avoid inductive load.

## FREQUENCY RESPONSE



## SUMMARY OF TECHNICAL DATA

<b>Bandwidth:</b>		DC to about 200 kHz at 100 Vpp
<b>Amplification:</b>		10 times fixed
<b>Load:</b>	type	resistive    capacitive
<b>Impedance:</b>	input	1 M $\Omega$    <30 pF
	output	1 $\Omega$ in the linear mode
<b>Voltage:</b>	input	nominal $\pm 5$ V
		maximum $\pm 10$ V
<b>Current:</b>	output	maximum 2 A
<b>Slew Rate:</b>	output	ca 20 V/ $\mu$ s at 50 $\Omega$ load
<b>Input protection fuse</b>		15 mA (Littelfuse, part number 272.015) one spare fuse provided inside the instrument, additional fuses available from Littelfuse resellers or from FLC Electronics AB.
<b>Operating Ambient Temperature:</b>		0°C to 30°C
<b>Storage Temperature:</b>		0°C to 60°C
<b>Relative Humidity:</b>		up to 90% (operation) 30% to 50% (storage)
<b>Power Requirements:</b>		100/110 V or 220/230 V, 50/60 Hz
<b>Fuse:</b>		100/110 V: 3.15 A (slow), 220/230 V: 2 A (slow)
<b>Dimensions (H/W/L):</b>		112 x 255 x 316 (mm)
<b>Weight:</b>		5 kg
<b>Country of Origin:</b>		Sweden

Note: Specifications apply to instruments operating at 23°C  $\pm$  5°C ambient temperature after 15 min. warm-up time. Due to ongoing product development, specifications are subject to change without notice.

**WARNING** It is not allowed to connect the 100...230V AC line power input of the amplifier to DC-AC converters or solid state AC generators with non-sinusoidal output.

## WARRANTY

FLC Electronics warrants that this product will be free from defects in materials and workmanship for a period of **two years** from the date of the shipment.

If any such product proves defective during this warranty period, FLC Electronics, at its option, either will repair the defective product without charge for parts and labour, or will provide a replacement for the defective product. In order to obtain service under this warranty, Customer must notify FLC Electronics of the defect before the expiration of the warranty period and make suitable arrangements for the performance of the service. Customer shall be responsible for packing and shipping the defective product to the service center designed by FLC Electronics, with shipping charges prepaid. FLC Electronics shall pay for the return of the product to the Customer if the shipment is to a location within the country in which the FLC Electronics service center is located. Customer shall be responsible for paying all shipping charges, duties, taxes, and any other charges for products returned to any other locations.

This warranty shall not apply to any defect, failure or damage caused by improper use or inadequate maintenance and care. FLC Electronics shall not be obligated to furnish service under this warranty:

- to repair damage resulting from attempts by personnel other than FLC Electronics representatives to install, repair or service the product;
- to repair damage resulting from improper use or connection to incompatible equipment;
- to service a product that has been modified or integrated with other products when the effect of such modification or integration increases the time or difficulty of servicing the product.

This warranty is given by the FLC Electronics with respect to this product in lieu of any other warranties, expressed or implied. FLC Electronics and its vendors disclaim any implied warranties of merchantability or fitness for a particular purpose. FLC Electronics' responsibility to repair or replace defective products is sole and exclusive remedy provided to the customer for breach of this warranty. FLC Electronics and its vendors will not be liable for any indirect, special, advance notice of the possibility of such damages.

The instrument may generate hazardous voltage levels! It should be operated by qualified personnel only. The instrument is to be used in normal room temperature and humidity.

The manufacturer cannot be held responsible for damage to any device connected to the instrument. It is recommended that samples or equipment sensitive to voltage spikes are disconnected from the high-voltage outputs when turning the power to the instrument ON or OFF.

# IMPORTANT



**Inside the amplifier case exist dangerous voltage levels.**



**The instrument cannot be powered from a DC-AC converter nor from a solid-state AC generator with non-sinusoidal output.**



**Loads sensitive to voltage transients should be disconnected from the amplifier during power-up and power-down.**



**Never connect the output to the input of the amplifier!**



**The amplifier may be overheated if the output is short-circuited for a long time.**



**The maximum allowable capacitive load depend on the internal setting of the slew rate. Overloading the output is likely to cause overshoot. Slow down the amplifier to accommodate a larger load.**



**It is recommended to monitor the output signal of the amplifier on the oscilloscope.**

## EC Declaration of Conformity

We

FLC Electronics AB  
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declare under sole responsibility that the

### **Voltage Amplifier P100**

meets the intent of Directive 89/336/EEC for Electromagnetic Compatibility (EMC) and Low Voltage Directive 73/23/EEC (LVD). Compliance was demonstrated to the following standards as listed in the official Journal of the European Communities:

<b>EN 50081-1</b>	<b>Generic Emissions</b>
EN 55022	Conducted emission (interference voltage), class B
EN 55022	Radiated emission (electric field), class B
<b>EN 50082-1</b>	<b>Generic Immunity</b>
EN 61000-4-4	Electrical fast transient/burst
EN 61000-4-2	Electrostatic discharge
EN 61000-4-3	Radiated E-fields (radio frequency)
<b>EN 61010-1:2001</b>	<b>Electrical Safety</b>



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