

# PICA Piezo Amplifier Module

High-Power Module with 1100 V Voltage Range, for the E-500 Piezo Controller System



## E-508

- Peak power up to 400 W
- Output voltage range 3 to 1100 V, -3 to -1100 V or bipolar
- Module for E-500 piezo controller rack
- E-508.OE for switching applications
- Position control (optional)
- Interface / display modules (optional)

The E-508 high-power amplifier for PICA high-voltage piezo actuators (HVPZT) is a plug-in module for the E-500 piezo controller system. This low-noise amplifier can output and sink a peak current of 50 mA (E-508.OE: up to 400 mA) in an 1100 V range. E-508 systems offer precision control of piezo actuators and piezo positioning systems both in closed-loop and voltage-controlled operation.

### Modular design for flexibility: Optional servo controller upgrade

The E-500 system is highly adaptable due to its modular design. Up to three E-508 modules can be installed in one E-500 chassis. The E-500/E-501 chassis allows an easy installation of the optional E-509 sensor/servo controller module for closed-loop operation. The output voltage of the E-508 is then set by the servo controller. A positioning accuracy and repeatability in the nanometer range is therefore possible depending on the piezo mechanics and the sensor type.

### Voltage controlled piezo positioning

In open-loop operation, the output voltage is determined either exactly by manually using a 10-turn DC-offset potentiometer or directly by using an analog signal. Open-loop operation is ideal for applications where fast response times and very high resolutions are essential at maximum bandwidth. The specification or position feedback in absolute values is either not significant or is done by an external servo loop.

### OEM version for fast switching applications

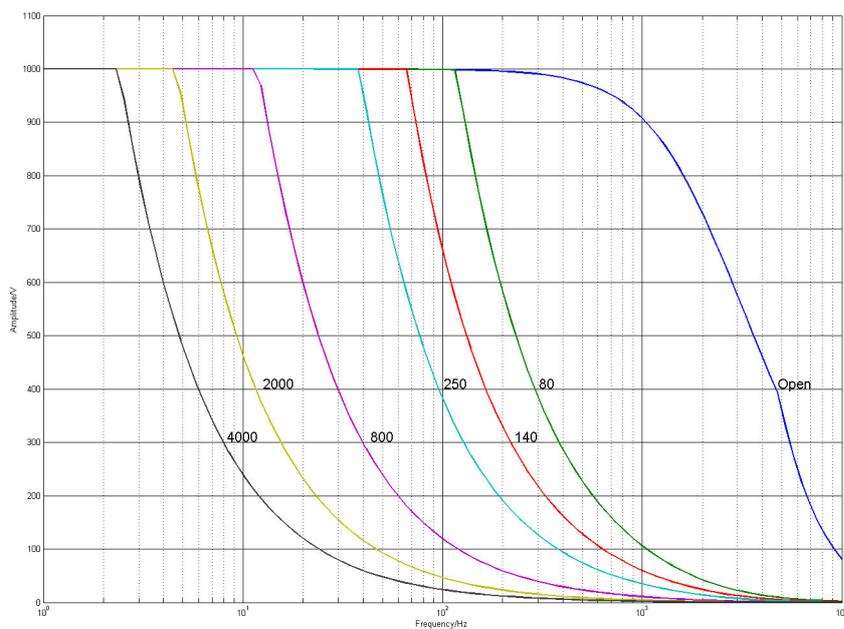
The E-508.OE high-current version has been especially designed for fast switching applications. It can output a peak current of 400 mA for 5 ms. The E-508.OE is directly controlled by an analog signal.

## Specifications

	E-508.00	E-508.OE
Function	Power amplifier for PICA high-voltage piezo actuators	Power amplifier for PICA high-voltage piezo actuators
<b>Amplifier</b>	<b>E-508.00</b>	<b>E-508.OE</b>
Output voltage	3 to +1100 V (default) Adjustable: -260 to +780 V -550 to +550 V +260 to -780 V -3 to -1100 V	3 to 1100 V (default) Optional: -260 to +780 V -550 to +550 V +260 to -780 V -3 to -1100 V
Amplifier channels	1	1
Average output power	13 W	13 W
Peak power, < 5 ms	50 W	400 W
Average output current	12 mA	12 mA
Peak current, <5 ms	50 mA	400 mA
Bandwidth, small signal	6 kHz	10 kHz
Amplifier bandwidth, large signal	50 Hz (200 nF)	50 Hz (200 nF)
Ripple, noise, 0 to 100 kHz	5 mV <sub>rms</sub> 50 mV <sub>pp</sub> (100 nF)	20 mV <sub>rms</sub> 200 mV <sub>pp</sub> (100 nF)
Current limitation	Short-circuit proof	Short-circuit proof
Voltage gain	+100 ±1, -100 ±1 (selectable)	+100 ±1, -100 ±1 (selectable)
Control input voltage	Without servo: ±1/100 of selected output voltage range With servo: 0 to 10 V	Without servo: ±1/100 of selected output voltage range With servo: 0 to 10 V
Input impedance	100 kΩ	100 kΩ
<b>Interfaces and operation</b>	<b>E-508.00</b>	<b>E-508.OE</b>
Piezo output socket	LEMO EGG.0B.701.CJL.1173	LEMO EGG.0B.701.CJL.1173
Input	BNC	SMB
DC offset setting	10-turn potentiometer, adds 0 to 10 V to the input voltage	–
<b>Miscellaneous</b>	<b>E-508.00</b>	<b>E-508.OE</b>
Operating voltage	E-500 system	E-500 system
Operating temperature range	5 to 50 °C (above 40 °C, power derated)	5 to 50 °C (above 40 °C, power derated)
Mass	0.75 kg	0.75 kg
Dimensions	14 HP / 3 RU	14 HP / 3 RU

Ask about customized versions.

## Drawings / Images



*E-508: Operating limits (open loop) with various piezo loads, capacitance values in nF*

## Ordering Information

### **E-508.00**

HVPZT piezo amplifier module, 3 to 1100 V, 1 channel

### **E-508.OE**

HVPZT piezo amplifier module, OEM, 400 mA peak current