

E-650

**LVPZT Amplifiers for
Multilayer Bender Actuators**

**Ordering
Information**

E-650.00
LVPZT Amplifier for Multilayer
Bender Actuators, Bench-Top

E-650.OE
LVPZT Amplifier Module for
Multilayer Bender Actuators,
OEM Version

Custom Designs
for Volume Buyers

- **Specifically Designed to Drive Multilayer “Bimorph” Actuators**
- **Bench-Top and OEM Versions**
- **Up to 18 W Peak Power**
- **LCD Voltage Display**
- **Output Voltage Range 0 to 60 V and Separate Fixed Voltage**

E-650.00 is a bench-top piezo driver, especially designed for low-voltage, multilayer PZT bender actuators (“bimorphs”) such as the PL122 to PL140. It is equipped with a special circuit that can provide one fixed voltage and a variable voltage in the range of 0 to 60 V. The driver can output and sink a peak current of 300 mA.. The E-650.00 can be operated in two ways:

- I. **Manual operation:** Output voltage can be set by a 10-turn DC-offset potentiometer in the range of 0 to 60 V.
- II. **External operation:** Output voltage is controlled by an analog signal applied to the BNC input, ranging from 0 to 10 V. Multiplying by the gain factor of 6, an output voltage range of 0 to 60 V results. The DC-offset potentiometer can be used to bias the control input voltage.

A 3 $\frac{1}{2}$ -digit LCD display shows the output voltage.

The E-650.OE is the OEM version of the E-650.00. It provides peak output power of 8 W. All inputs and outputs are via 8 header pins located on

the bottom of the module. The E-650.OE is designed to be mounted on a circuit board. The electronics are fully enclosed in a metal case.



E-650.OE LVPZT Amplifier Module for Multilayer Bender Actuators, OEM Version



E-650.00 LVPZT Amplifier for Multilayer Bender Actuators

Technical Data

Models	E-650.00	E-650.OE
Function	Power amplifier	Power amplifier
Channels	1	1
Maximum output power	18 W	8 W
Average output power	6 W	4 W
Peak output current < 5 ms	300 mA	140 mA
Avg. output current > 5 ms	100 mA	60 mA
Current limitation	Short-circuit proof	Short-circuit proof
Voltage gain	6 ±0.1	6 ±0.1
Polarity	positive	positive
Control input voltage	0 to +10 V	0 to +10 V
Display	3 $\frac{1}{2}$ -digit LCD	-
Output voltage	0 to 60 V, one additional fixed voltage of 60 V	0 to 60 V, one additional fixed voltage of 60 V
DC-offset setting	0 to 60 V at output, with 10-turn pot (E-650.00 only)	0 to 60 V at output, with 10-turn pot (E-650.00 only)
Input impedance	100 kΩ	100 kΩ
Frequency response	600 Hz @ 1000 nF load 6 kHz @ no load	200 Hz @ 1000 nF load 3 kHz @ no load
Control input socket	BNC	header pins
PZT voltage output socket	9-pin Sub-D	header pins
Dimensions	160 x 125 x 50 mm	70 x 42 x 30 mm
Weight	0.7 kg (w/o P/S)	0.15 kg
Operating voltage	90-240 VAC, 50-60 Hz (external switching P/S, included)	+/- 15 V, 315 mA max., stabilized
Operating temperature range	0 to +50°C	0 to +50°C