

E-662

# LVPZT Piezo Amplifier & Position Servo-Controller

Replaced by E-665:

Click here for new Datasheet: <http://www.physikinstrumente.com/en/products/prdetail.php?sortnr=600901>

## Ordering Information

### E-662.LR

LVPZT Amplifier & Position Controller, LVDT, RS-232 Interface

### E-662.SR

LVPZT Amplifier & Position Controller, SGS, RS-232 Interface

Custom Designs for Volume Buyers



E-662 LVPZT Amplifier & Position Controller

- 36 W Peak Power
- Position Servo-Control
- For Strain Gauge or LVDT Sensors
- RS-232 Computer Interface

The E-662 is a bench-top, amplifier and position servo-controller with integrated RS-232 computer interface and 12-bit D/A converter for low-voltage PZTs. The amplifier can output and sink a peak current of 360 mA and an average current of 120 mA. The position servo-controller works with either strain gauge sensors (E-662.SR) or LVDT sensors (E-662.LR). The E-662 can be operated in six ways:

- I. Open-Loop Manual Operation (power-supply mode):** Output voltage can be set by a 10-turn, DC-off-set potentiometer in the range of 0 to 100 V.
- II. Open-Loop External Operation (amplifier mode):** Output voltage is controlled by an analog signal applied to the BNC input ranging from -2 to +12 V. Multiplying by the gain factor of 10, an output voltage range of -20 to +120 V results. The DC-offset potentiometer adds a DC bias to the input, allowing continuous shifting of the input voltage range between -2 V to +12 V and -12 V to +2 V (see page 6-40).
- III. Open-Loop Computer Control:** Output voltage is controlled via the RS-232 computer interface in the range of 0 to 100 V with a resolution of 12 bits. The DC-offset potentiometer and BNC analog input are inactive when in computer control mode.

- IV. Closed-Loop (position control mode) Manual Operation:** Displacement of the PZTs can be set by a 10-turn, DC-offset potentiometer in the range of zero to nominal displacement.
- V. Closed-Loop External Operation:** Displacement of the PZT is controlled by an analog signal in the range of 0 to +10 V, applied to the BNC input. The controller is calibrated in such a way that 10 V corresponds to maximum nominal displacement and 0 V corresponds to 0 displacement. The DC-offset potentiometer can be used to add an offset voltage of 0 to 10 V to the input signal.

- VI. Closed-Loop Computer Control:** Displacement of the PZT is controlled via the RS-232 computer interface in the range of 0 to maximum nominal displacement, with a resolution of 12 bits. The DC-offset potentiometer and BNC analog input are inactive when in computer control mode.

More than 40 SCPI (standard commands for programmable instruments) ASCII commands are available to program the E-662. An internal function generator provides sine, square, ramp and triangular wave functions up to 150 Hz. User-defined functions can be stored in a table with up to 200 entries.

## Notes

Important Calibration Information: Please read details on page 6-41.

PZT Actuators

PZT Flexure NanoPositioners

PZT Active Optics / Steering Mirrors

Tutorial: Piezoelectrics...

Capacitive Position Sensors

PZT Control Electronics

MicroPositioners / Hexapod Systems

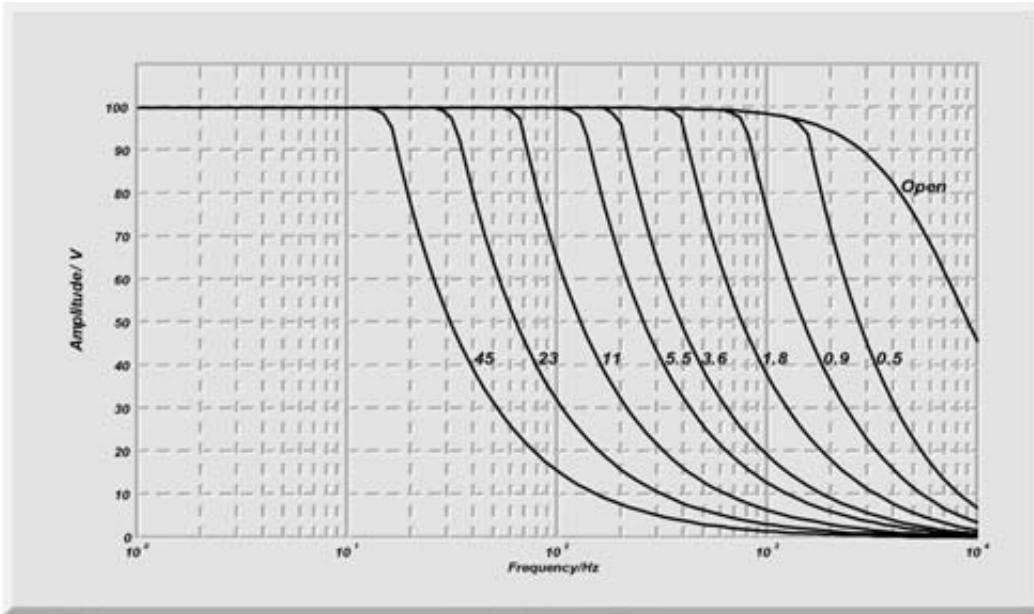
Photonics Alignment & Packaging Systems

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<http://www.pi.ws>  
[info@pi.ws](mailto:info@pi.ws)

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E-662, open-loop frequency response with various PZT loads. Capacitance values are in  $\mu\text{F}$ , measured in actual PZT.

**Technical Data**

Models	E-662.LR	E-662.SR
Function	Power amplifier & sensor/position servo-control of PZTs	Power amplifier & sensor/position servo-control of PZTs
Channels	1	1
<b>Amplifier</b>		
Maximum output power	36 W (see page 6-40)	36 W (see page 6-40)
Average output power	12 W	12 W
Peak output current < 5 ms	360 mA	360 mA
Average output current > 5 ms	120 mA	120 mA
Current limitation	short-circuit proof	short-circuit proof
Voltage gain	10 $\pm$ 0.1	10 $\pm$ 0.1
Polarity	Positive	Positive
Control input voltage	-2 to +12 V	-2 to +12 V
Output voltage	-20 to 120 V	-20 to 120 V
DC offset setting	0 to 100 V with 10-turn pot.	0 to 100 V with 10-turn pot.
Input impedance	100 k $\Omega$	100 k $\Omega$
Display	2 x 3 1/2-digit, LED	2 x 3 1/2-digit, LED
Control input socket:	BNC	BNC
PZT voltage output socket	LEMO ERA.00.250.CTL	LEMO ERA.00.250.CTL
Dimensions	235 x 103 x 288 mm (s. page 6-7)	235 x 103 x 288 mm (s. page 6-7)
Weight	2.5 kg	2.5 kg
Operating voltage	90-120 / 220-240 VAC, 50-60 Hz (linear P/S)	90-120 / 220-240 VAC, 50-60 Hz (linear P/S)
<b>Position Servo-Control</b>		
Sensor Type	SGS	LVDT
Servo Characteristics	P-I (analog) + notch filter	P-I (analog) + notch filter
Sensor socket	LEMO ERA.0S.304.CLL	LEMO ERA.0S.304.CLL
Sensor monitor output socket	BNC	BNC
<b>D/A Converter &amp; Computer Interface</b>		
Resolution	12 bit ( $\pm$ 2.5 mV input)	12 bit ( $\pm$ 2.5 mV input)
Computer interface	RS-232, 2400 – 38400 baud	RS-232, 2400 – 38400 baud