E-610

LVPZT Piezo Amplifier & Position Servo-Controller Modules, OEM Version

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E-610

- **Open-Loop and Closed-Loop Versions**
- **For Capacitive, Strain Gauge and LVDT Sensors**
- **14 W Peak Power**
- **Runs on Single Stabilized Voltage (12 to 30 VDC)**

The E-610 is an OEM, stand-alone, amplifier & position servo-control board for low-voltage PZTs. Four versions are available: E-610.00 (open-loop, amplifier only) and the closed-loop versions E-610.S0, E-610.L0 and E-610.C0 (with additional circuitry for position sensing and servo-control).

Version E-610.S0 controls strain-gauge-sensor-equipped PZTs, version E-610.L0 controls LVDT-sensor-equipped PZTs and version E-610.C0 controls capacitive-sensor-equipped PZTs. The open-loop version (E-610.00) can be operated in two ways, the closed-loop versions in four ways:

I. Open-Loop External Control (amplifier mode):

Output voltage is controlled by an analog signal ranging from -2 to +12 V. Multiplying by the gain factor of 10, an output voltage range of -20 to +120 V results. If an external offset potentiometer (not included) is connected, it allows for continuous shifting of the input range between -2 V to +12 V and -12 V to +2 V (see page 6-52).

II. Open-Loop Manual Control (power supply mode):

With 0V input signal, output voltage can be set by an external, DC-offset potentiometer (not included) in the range of 0 to 100 V.

III. Closed-Loop (position-control mode) External Control:

Displacement of the PZT is controlled by an analog signal in the range of 0 to +10 V. The controller is calibrated in such a way that 10 V corresponds to maximum nominal displacement and 0 V corresponds to zero displacement. If an external offset potentiometer (not included) is connected, it can be used to add an offset voltage of 0 to 10 V to the input signal.

IV. Closed-Loop Manual Control:

With 0 V input signal, displacement of the PZTs can be set by a DC-offset potentiometer (not included) in the range of zero to nominal displacement.

Only one unipolar stabilized voltage in the range of 12 to 30 V is required to operate the E-610. An integrated DC/DC converter generates the PZT operating voltage and all other voltages used internally. All inputs and outputs are via the male 32-pin rear connector. A matching female 32-pin connector, a LEMO ERN.00.250.CTL PZT operating voltage connector, and a LEMO ERA.0S.304.CLL sensor connector are included to interface with standard PI LVPZTs.

Computer Controlled Mode:

For computer control, the E-621 controller boards are available (see page 6-36 for details).

Notes

Important Calibration Information: Please read details on page 6-53.

Ordering Information

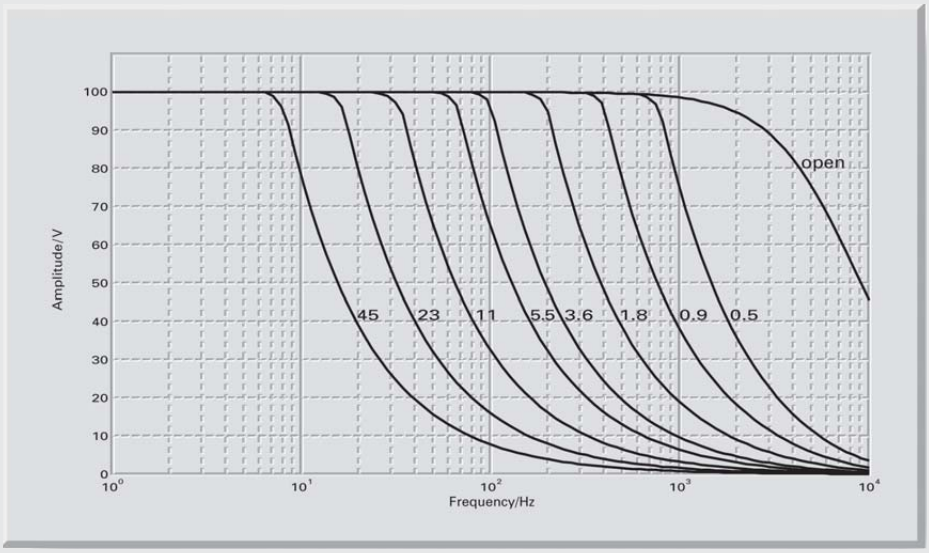
E-610.00
LVPZT Amplifier Module, OEM

E-610.C0
LVPZT Amplifier/ Controller Module, Capacitive Sensor, OEM

E-610.L0
LVPZT Amplifier/Controller Module, LVDT Sensor, OEM

E-610.S0
LVPZT Amplifier/Controller Module, Strain Gauge Sensor, OEM

Ask about custom designs!



E-610, open-loop frequency response with various PZT loads. Values shown are capacitance in µF, measured in actual PZT.

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Technical Data

Models	**E-610.00, E-610.CO, E-610.LO, E-610.S0**
Function	power amplifier & sensor/position servo-control of PZTs
Channels	1
Amplifier	
Maximum output power	14 W (see page 6-52)
Average output power	6 W
Peak output current <5 ms	140 mA
Average output current >5 ms	60 mA
Current limitation	short-circuit proof
Voltage gain	10 ±0.1
Polarity	positive
Control input voltage	-2 to +12 V
Output voltage	-20 to 120 V
DC-offset setting	0 to 100 V at output, with external potentiometer (not included)
Input impedance	100 kΩ
Input/output connector	32-pin (male) on rear panel (DIN 41612/D), LEMO voltage socket included
Dimensions	one 7T slot wide, 3H high
Weight	0.35 kg (E-610.00: 0.3 kg)
Operating voltage	12 to 30 VDC, stabilized
Operating current	2 A
Position Servo-Control (except E-610.00)	
Sensor Types	strain gauge (E-610.S0); LVDT (E-610.L0), capacitive (E-610.C0)
Servo Characteristics	P-I (analog) + notch filter
Sensor Socket	LEMO ERA.0S.304.CLL (included)