

E-610

LVPZT Amplifier & Position Servo-Controller Modules, OEM Version



E-610

- **Open-Loop and Closed-Loop Versions**
- **Optional RS-232 Interface**
- **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 Operation (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 6-40).
- II. **Open-Loop Manual Operation (power supply mode):** With 0 V 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 Operation:** 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 Operation:** 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.

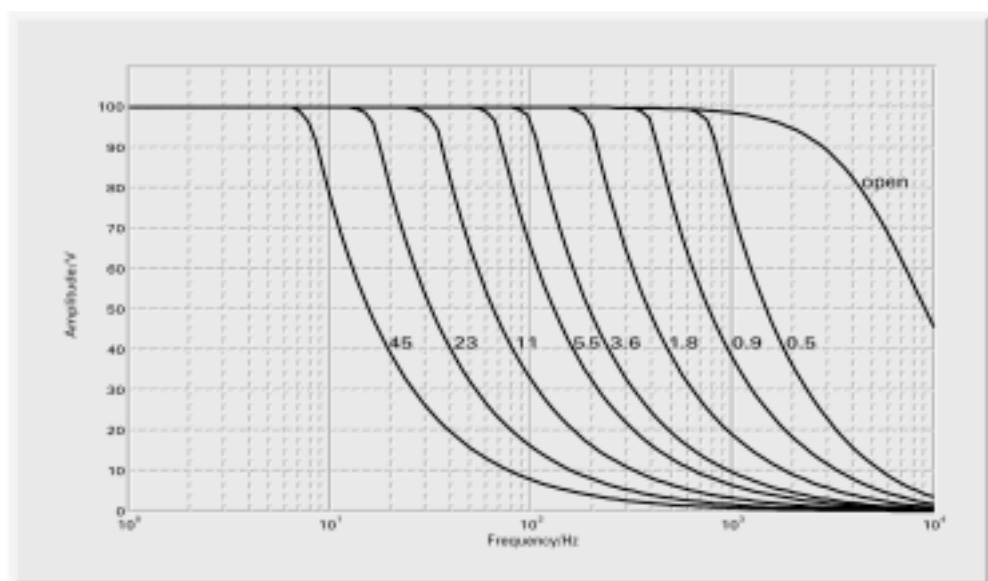
Only one unipolar stabilized voltage in the range of 12 to 30 VDC is required to operate the E-610. An integrated DC/DC converter generates the PZT operating voltage and all other voltages used internally. All inputs and outputs are via the male 32-pin rear connector. A matching female 32-pin connector, a LEMO ERA.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: Additional E-610 versions with integrated RS-232 interfaces for computer control will be available soon. See ordering information for model numbers and consult www.pi.ws or your PI Sales Engineer for availability and technical details.

Notes

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

<http://www.pi.ws>
info@pi.ws



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

Ordering Information

- E-610.00
LVPZT Amplifier Module, OEM
- E-610.CO
LVPZT Amplifier/ Controller Module,
Capacitive Sensor, OEM
- E-610.LO
LVPZT Amplifier/Controller Module,
LVDT Sensor, OEM
- E-610.SO
LVPZT Amplifier/Controller Module,
Strain Gauge Sensor, OEM
- E-610.i0*
LVPZT Amplifier Module,
RS-232 Interface, 20-bit DAC, OEM
- E-610.iL*
LVPZT Amplifier/Controller Module,
RS-232 Interface, 20-bit DAC,
LVDT Sensor, OEM
- E-610.iS*
LVPZT Amplifier/Controller Module,
RS-232 Interface, 20-bit DAC,
Strain Gauge Sensor, OEM

* Consult www.pi.ws or call your PI Sales Engineer for availability.

Custom Designs
for Volume Buyers

Technical Data

Models	E-610.00, E-610.CO, E-610.LO, E-610.SO
Function	power amplifier & sensor/position servo-control of PZTs
Channels	1
Amplifier	
Maximum output power	14 W (see page 6-40)
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 \pm 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 k Ω
Input/output connector	32-pin (male) on rear panel (DIN 41612/D)
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.SO); LVDT (E-610.LO), capacitive (E-610.CO)
Servo Characteristics	P-I (analog) + notch filter
Sensor Socket	LEMO ERA.0S.304.CLL (included)