Piezo Amplifier / Servo Controller

1-Channel OEM Module with Optional Position Control

E-610

- Inexpensive 1-channel OEM solution
- Closed-loop and open-loop versions
- Notch filter for higher bandwidth
- Position control for SGS, LVDT, and capacitive sensors
- Peak current 140 mA

OEM modules for low-voltage piezo actuators

E-610 amplifier / servo controller modules are designed for operating low-voltage piezo actuators and positioning systems. They are equipped with an integrated low-noise piezo amplifier that can input and output peak currents of 140 mA in the low-voltage range. Four versions are available: E-610.00 (amplifier only) as well as the E-610.S0, E-610.L0, and E-610.C0 versions with additional components for control as well as measuring the position. The E-610.S0 was designed for piezo mechanics with strain gauge positioning sensors, the E-610.L0 for systems with LVDT sensors, and the E-610.C0 for systems with capacitive sensors.

Closed-loop and open-loop piezo positioning

The E-610 modules offer precision control of piezo actuators and piezo positioning systems both in closed-loop and voltage-controlled operation. The piezo controllers already have electronics for position sensing and position control. The control signal controls the piezo position directly. A positioning accuracy and repeatability in the nanometer range is therefore possible depending on the piezo mechanics and the sensor type.

Control via PC

The E-621 and E-625 models are available for control via a digital PC interface. Alternatively, analog control is possible from the PC via D/A converter. PI offers a full driver set for use with NI LabVIEW software for certain D/A converter boards from National Instruments.

Specifications

	E-610.00	E-610.C0 / E-610.S0 / E-610.L0
Function	Piezo amplifier, 1 channel, OEM module	Piezo amplifier / servo controller, 1 channel, OEM module

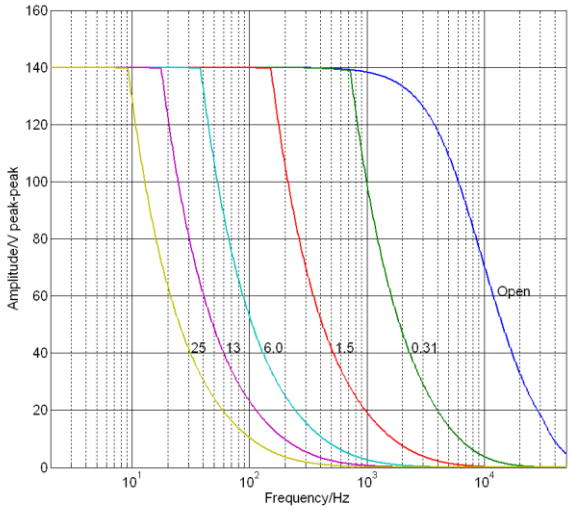
Sensor	E-610.00	E-610.C0	E-610.S0	E-610.L0
Controller type	–	P-I (analog), notch filter	P-I (analog), notch filter	P-I (analog), notch filter
Sensor type	–	Capacitive	SGS	LVDT

Amplifier	E-610.00	E-610.C0 / E-610.S0 / E-610.L0
Input voltage range	-2 to 12 V	-2 to 12 V
Output voltage	-30 to 130 V	-30 to 130 V
Peak current (<5 ms)	140 mA	140 mA
Average output current	60 mA	60 mA
Noise, 0 to 100 kHz	1 mV_{rms}	1 mV_{rms}
Voltage gain	10 ±0.1	10 ±0.1
Input impedance	100 kΩ	100 kΩ

Interfaces and operation	E-610.00	E-610.C0 / E-610.S0 / E-610.L0
Input / output	32 (m) on the rear side (DIN 41612 / D)	32 (m) on the rear side (DIN 41612 / D)
Piezo connection socket	LEMO	LEMO
Sensor connector	–	LEMO
Sensor monitor output	–	0 – 10 V
DC offset setting	External potentiometer (not in the scope of delivery), adds 0 to 10 V to the input voltage	External potentiometer (not in the scope of delivery), adds 0 to 10 V to the input voltage

Miscellaneous	E-610.00	E-610.C0 / E-610.S0 / E-610.L0
Operating temperature range	5 to 50 °C	5 to 50 °C
Dimensions	7 HP / 3 RU	7 HP / 3 RU
Mass	0.3 kg	0.35 kg
Operating voltage	12 to 30 V DC, stabilized	12 to 30 V DC, stabilized
Current consumption, max.	2 A	2 A

Drawings / Images



E-610: Operating limits (open loop) with various piezo loads, capacitance values in µF

Ordering Information

E-610.00
Piezo amplifier, 1 channel, OEM module, -30 to 130 V

E-610.C0
Piezo amplifier / servo controller, 1 channel, OEM module, -30 to 130 V, capacitive sensor

E-610.S0
Piezo amplifier / servo controller, 1 channel, OEM module, -30 to 130 V, strain gauge sensor

E-610.L0
Piezo amplifier / servo controller, 1 channel, OEM module, -30 to 130 V, LVDT sensor