E-651 – E-614 Piezo Amplifier / Servo Controller

Piezo Controller for Closed-Loop Multilayer Bender Actuators

E-651 dual- and single-channel controllers for closed-loop piezo benders

- **Controller for Closed-Loop Multilayer Bimorph Actuators**
- **Bench-Top & OEM-Board Versions**
- **1- and 2-Channel Versions**

E-651 is a bench-top piezo controller, especially designed for low-voltage, multilayer piezo bender actuators equipped with strain gauge sensors such as the P-871 (see p. 1-84). One and two channel versions are available.

The E-614.2BS OEM board provides the same functionality as the E-651.2S two-channel controller in a smaller package.

Closed-Loop and Open-Loop Piezo Positioning

In closed-loop position control mode, displacement of the piezo bender is proportional to the analog signal applied to the BNC control input socket. The controller is calibrated in such a way that ±5 V input corresponds to maximum nominal deflection.

The E-651 can also be operated as piezo driver (open-loop, or voltage-controlled mode). The output voltage is then determined directly by the analog input signal in the -5 to +5 V range. Multiplying by the gain factor of 6, an output voltage range of 0 to 60 V results.

Ordering Information

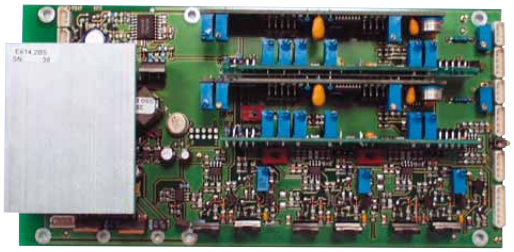
E-651.1S
Piezo Amplifier / Servo Controller for Bender Actuators, 1 Channel, 0 to 60 V, DMS-Sensor, Bench-Top

E-651.2S
Piezo Amplifier / Servo Controller for Bender Actuators, 2 Channels, 0 to 60 V, DMS-Sensor, Bench-Top

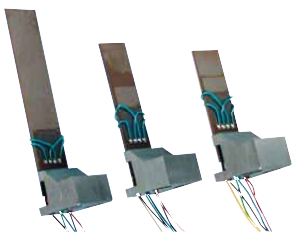
E-614.2BS
Piezo Amplifier / Servo Controller for Bender Actuators, 2 Channels, 0 to 60 V, DMS-Sensor, OEM Board

Technical Data

Models	E-651.1S	E-651.2S
Function	Piezo amplifier & servo controller for multilayer bender actuators, bench-top	Piezo amplifier & servo controller for multilayer bender actuators, bench-top
Channels	1	2
Sensor		
Servo characteristics	P-I (analog)	P-I (analog)
Sensor type	SGS	SGS
Sensor bandwidth	Low-pass filter cut-off frequency: 100 Hz / 5 kHz selectable	Low-pass filter cut-off frequency: 100 Hz / 5 kHz selectable
Amplifier		
Input voltage	-5 to +5 V	-5 to +5 V
Output voltage	0 to 60 V, plus fixed reference voltage of 60 V	0 to 60 V, plus fixed reference voltage of 60 V
Peak output power per channel, < 5 ms	1 W	1 W
Average output power per channel, >5 ms	0.5 W	0.5 W
Peak current per channel	6 mA	6 mA
Average current per channel	18 mA	18 mA
Current limitation	Short-circuit-proof	Short-circuit-proof
Voltage gain	**6**	**6**
Input impedance	100 kΩ	100 kΩ
Interfaces and operation		
Piezo / sensor connector	LEMO EPG.0B.307.HLN	LEMO EPG.0B.307.HLN
Analog input	BNC	BNC
Sensor monitor output	0 to +10 V for nominal displacement	0 to +10 V for nominal displacement
Sensor monitor socket	BNC	BNC
Miscellaneous		
Operating temperature range	5 to 50 °C	5 to 50 °C
Overtemp protection	Deactivation at 75 °C	Deactivation at 75 °C
Dimensions	125 x 90 x 265 mm	125 x 90 x 265 mm
Mass	1.36 kg	1.45 kg
Operating voltage	14 to 16 V DC (C-890.PS wide-range power supply included)	14 to 16 V DC (power supply C-890.PS included)
Power consumption	15 W	15 W



E-614.2BS two-channel OEM controller board



PICMA® P-871 closed-loop piezo bender actuators, providing displacement up to 1.6 mm with high linearity