

E-505 Piezo Amplifier Module

High Power, E-500 Piezo Controller System



E-505.00 is a high-performance amplifier module for the piezo servo-controller system E-500

- 200 W Peak Power
- Output Voltage Range -20 to 120 V
- Module for E-500 Piezo Controller Rack
- Prepared for Position Servo-Control Upgrade (optional)
- Prepared for Interfaces / Display Modules (optional)

The E-505 piezo amplifier module is designed to work in the E-500 Controller system (see p. 2-142). It features a low-noise, high-power amplifier for low-voltage piezo actuators and positioners, that can output and sink a peak current of up to 2000 mA in the -20 to 120 V voltage range. The E-505 units are designed to provide high-resolution operation of piezo actua-

tors and positioning systems in voltage-controlled mode (open-loop) and optionally in position-controlled mode (closed-loop). For switching applications the E-505.10 version provides a peak output current of up to 10 A.

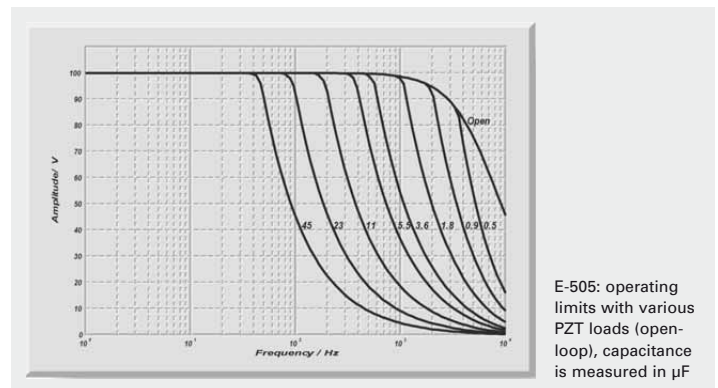
For frequency response with selected capacitive loads, see graph below.

Ordering Information

E-505.00
Piezo Amplifier Module, 200 W, -20 to 120 V, 1 Channel

E-505.10
Piezo Amplifier Module for Switching Applications, 1000 W, -20 to 120 V, 1 Channel

E-505.00S
Offset Voltage Supply for Tip/Tilt Systems, One Fixed Voltage of +100 V



E-505: operating limits with various PZT loads (open-loop), capacitance is measured in μF

Technical Data

Model	E-505.00	E-505.10	E-505.00S
Function	Power amplifier	Power Amplifier for Switching Applications*	Offset Voltage Supply for Tip/Tilt Systems
Channels	1	1	1
Amplifier			
Control input voltage range	-2 to +12 V	-2 to +12 V	-
Output voltage	-20 to +120 V	-20 to +120 V	100 V
Peak output power	200 W (<5 ms)	1000 W (<200 μs)	200 W (<5 ms)
Average output power	30 W	30 W	30 W
Peak current	2 A (<5 ms)	10 A (<200 μs)	2 A (<5 ms)
Average current	300 mA	300 mA	300 mA
Current limitation	Short-circuit-proof	Short-circuit-proof	Short-circuit-proof
Noise, 0 to 100 kHz	<0.7 mVrms	1.0 mVrms	<0.7 mVrms
Voltage gain	12 \pm 0.1	12 \pm 0.1	-
Input impedance	1 M Ω / 1 nF	1 M Ω / 1 nF	-
Interfaces and operation			
Piezo connector	LEMO ERA.00.250.CTL	LEMO ERA.00.250.CTL	LEMO ERA.00.250.CTL
Analog input	BNC	BNC	-
DC-Offset	10-turn pot., adds 0 to 10 V to Control In	10-turn pot., adds 0 to 10 V to Control In	-
Miscellaneous			
Operating temperature range	+5 to +50 $^{\circ}\text{C}$	+5 to +50 $^{\circ}\text{C}$	+5 to +50 $^{\circ}\text{C}$
Overheat protection	Deactivation at +85 $^{\circ}\text{C}$	Deactivation at +85 $^{\circ}\text{C}$	Deactivation at +85 $^{\circ}\text{C}$
Dimensions	14HP/3U	14HP/3U	14HP/3U
Mass	0.9 kg	0.9 kg	0.9 kg
Operating Voltage	E-500 System	E-500 System	E-500 System
Max. power consumption	45 W	45 W	45 W

* For piezo actuators with special high-current layout

Modular Design for Flexibility: Optional Servo Controller Upgrade

Up to three E-505 amplifier modules can be installed in one E-500 chassis. The flexible, modular design of the E-500 piezo servo-controller system allows easy installation of an optional E.509 sensor- / servo-controller module for closed-loop operation. The output voltage is then set by the servo-control loop. Closed-loop piezo mechanics from PI can provide positioning accuracy and repeatability down to the nano-meter range and below.