

E-625 Piezo Servo-Controller & Driver

Compact Bench-Top Device with High-Speed Interface



E-625.SR (left) and E-625.CR compact piezo servo-controllers

- **Optionally Integrated 20-Bit High-Speed RS-232 Interface**
- **Network Capability with up to 12 Channels**
- **12 W Peak Power**
- **Position Control with Strain Gauge or Capacitive Sensor**
- **Notch Filter for Higher Bandwidth**
- **Table for User-Defined Curves**
- **Additional Analog Interface**

The single-channel E-625 piezo controller is equipped with a high-speed RS-232 interface and precision 20-bit D/A and A/D converters for exceptional positional stability and resolution. It integrates a low-noise integrated piezo amplifier which can output and sink peak currents of 120 mA for low-voltage piezoelectric actuators (-20 to 120 V). Servo-controller versions for position sensing with capacitive or SGS sensors are available. PI employs proprietary position sensors for fast response and optimum positioning resolution and stability in the nanometer range and below. For high-end applications, capacitance sensors provide direct and non-contact position feedback (direct metrology). Strain gauge sensors (SGS) are available for cost-effective applications. The integrated notch filters (adjustable for each axis) improve the stability and allow high-bandwidth

operation closer to the resonant frequency of the mechanics.

Multi-Axis Network for up to 12 Channels

Up to twelve E-625 for capacitive or SGS sensors can be networked and controlled over a single RS-232 interface. The different units are connected in parallel (not daisy-chained) over the link providing higher data rates than possible with serial links. Between the individual E-625s, parallel networking with optional E-625.CN cables is used.

High-Resolution Digital Interface

The RS-232 digital interface includes high-precision 20-bit D/A and A/D converters for optimum position stability and resolution and supports fast communication with the host computer, with up to 300 bidirectional read/write operations per second.

Waveform Memory

The built-in wave generator can store user-defined data points internally. These values can then be output automatically (or under the control of an external signal) and programmed for point-by-point or full-scan triggering. Thus, trajectory profiles can be repeated reliably and commanded easily.

Extensive Software Support

The controllers are delivered with Windows operating software. Comprehensive DLLs and LabVIEW drivers are available for automated control.

The extensive command set is based on the hardware-independent General Command Set (GCS), which is common to all current PI controllers for both nano- and micropositioning systems. GCS reduces the pro-

Ordering Information

E-625.CR
Piezo Amplifier / Servo-Controller, 1 Channel, -20 to 120 V, Capacitive Sensor, RS-232

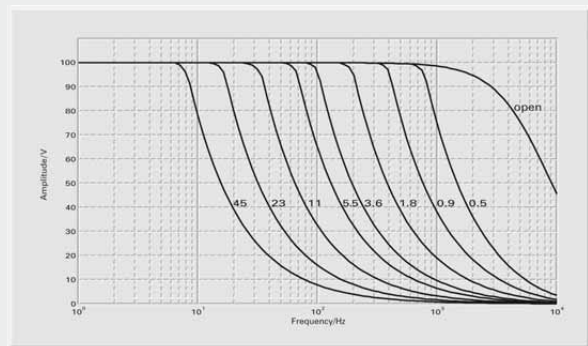
E-625.SR
Piezo Amplifier / Servo-Controller, 1 Channel, -20 to 120 V, SGS-Sensor, RS-232

E-625.CN
Network Cable for Networking of Two E-625

E-625.CO
PIFOC® Piezo Amplifier / Servo-Controller, 1 Channel, -20 to 120 V, Capacitive Sensor

E-625.SO
PIFOC® Piezo Amplifier / Servo-Controller, 1 Channel, -20 to 120 V, SGS-Sensor

gramming effort in the face of complex multi-axis positioning tasks or when upgrading a system with a different PI controller.



E-625: operating limits with various PZT loads (open-loop), capacitance is measured in μF



Ideal system configuration:
E-625.CR with P-725 PIFOC® microscope objective positioner



Technical Data

Model	E-625.SR / E-625.CR
Function	Piezo Amplifier / Servo-Controller
Axes	1
Sensor	
Servo characteristics	P-I (analog), notch filter
Sensor type	SGS (.SR) / capacitive (.CR)
Sensor resolution	20-bit
Amplifier	
Control input voltage range	-2 to 12 V
Min. output voltage	-20 to 120 V
Peak output power, < 5 ms	12 W
Average output power	6 W
Peak current, < 5 ms	120 mA
Average current	60 mA
Current limitation	Short-circuit-proof
Noise, 0 to 100 kHz	0.8 mVrms
Voltage gain	10 ±0.1
Input impedance	100 kΩ
Interfaces and operation	
Interface / communication	RS-232 (9-pin Sub-D connector), 20 bit ADC/DAC, 9.6–115.2 kBaud E-625.S0 and E-625.C0 without interface
Piezo connector	LEMO ERA.00.250.CTL (.SR) / Sub-D Special (.CR)
Sensor connection	LEMO EPL.0S.304.HLN (.SR) / Sub-D Special (.CR)
Control input sockets	SMB
Sensor monitor socket	SMB
Controller network	up to 12 channels. parallel
Supported functionality	Wave table, 64 data points, 100 Hz, external trigger
Miscellaneous	
Operating temperature range	+5 to +50 °C
Overheat protection	Deactivation at 75°C
Dimensions	205 x 105 x 60 mm
Mass	1.05 kg
Operating voltage	12 to 30 V DC, stabilized
Current consumption	2 A

Linear Actuators & Motors

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