

# E-750

## High-Speed Digital Piezo NanoAutomation® Controller

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- Ultra-Fast Servo Loop: 90 µsec
- Optical FiberLink Interface (Optional): 1 Mbit/s
- DSP-Based Real-Time Operating System
- Additional High-Speed Analog Input
- AutoCalibration Function for NanoPositioning Systems with ID Chip
- All Servo-Parameters Stored in Flash ROM
- Autofocus Firmware Option
- GCS (General Command Set) Compatible
- Optional InputShaping®

The new E-750.CP digital PZT controller offers unmatched responsiveness and precision for the most demanding OEM applications. Driving the ultra-fast P-752 and P-753 series nano-mechanisms, the E-750 provides sub-millisecond settling and sub-angstrom resolution.

### Application Examples

- Head / media test
- Track profiling
- Scanning-probe microscopy
- Microablation and active optics

### Three Interfaces, High-Speed FiberLink Interface

In addition to the RS-232 interface, the E-750 is equipped with an ultra-fast (1 Mbit/ sec) FiberLink Interface (distance up to 50 m) featuring complete electrical isolation to eliminate coupled EMI as a source of low-level position modulation. A high-bandwidth analog interface (-10 to 10 V) is also standard.

### AutoCalibration

OEM customers will appreciate the AutoCalibration function, allowing random combination (and easy interchange) of controllers and NanoPositioning systems with factory default

configuration. Calibration data, linearization data and optimized servo-control parameters are stored in each NanoPositioning system and read by the controller upon power-up.

### Analog + Digital Linearization

A digital linearization algorithm and the exclusive use of precision components in the controller guarantee excellent linearity and position accuracy. In addition, the ILS system (s. p. 5-6) is installed to linearize the sensor signal before the A/D converter.

The controller is equipped with a wide-range power supply for use throughout the world.

### Optional InputShaping®

The E-750 complements ultra-low-noise PZT power amplifier, capacitive position sensing circuitry and sophisticated digital signal processing with fast servo-control algorithms. It is also the first system on the market offering PI's exclusive Mach™ Throughput Coprocessor technology (InputShaping®), which achieves the fastest possible overall system throughput by eliminating the effect of mechanical resonances (optional).

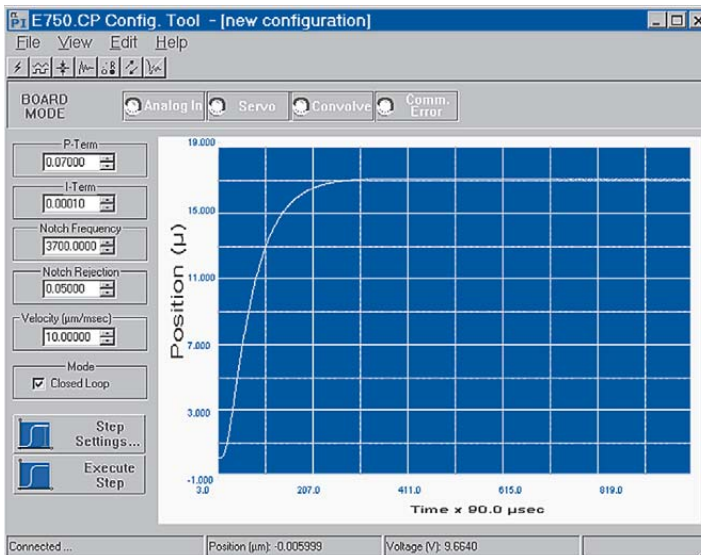
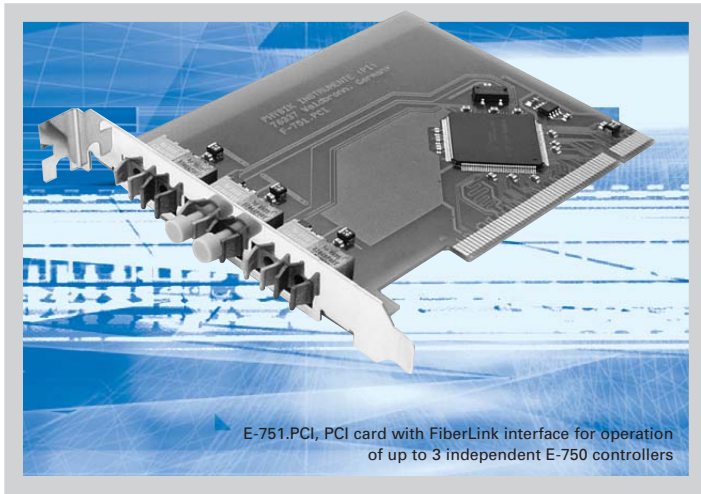


### Ordering Information

- E-750.CP**  
Digital NanoAutomation® Controller w/optical Interface
- E-751.PCI**  
PCI Card with FiberLink Interface
- E-751.PIO**  
Parallel-Port-to-Fiber Converter
- Options**
- E-751.F05**  
5 m FiberLink Cable
- Ask about custom designs!**

### Notes

Important Calibration Information: Please read details on p. 6-53.



E-750 software tool allows step-and-settle analysis and optimization of connected nanopositioning system.

Piezo Actuators

Nanopositioning &amp; Scanning Systems

Active Optics / Steering Mirrors

Tutorial: Piezo-electrics in Positioning

Capacitive Position Sensors

Piezo Drivers &amp; Nanopositioning Controllers

Hexapods / Micropositioning

Photonics Alignment Solutions

Motion Controllers

Ceramic Linear Motors &amp; Stages

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## Technical Data

Models	E-750.CP
Function	Digital NanoAutomation® Controller
Channels	1
Processor	32-bit floating point DSP, 50 MHz
Sampling rates	30 μs (Sensor), 90 μs (Servo Loop)
Effective resolution DAC	20 bits
Sensor types	Capacitive, two-plate sensors
Analog input	-10 to +10 V
RS-232 interface	115 kBit/s, BiSync protocol, ISO 1745-1975 (E)
Fiber-Link interface (optional)	1 MBit/s
Max. output power	10 W (see page 6-52)
Current limitation	Short-circuit proof
Output voltage range	-20 to +120 V
PZT and sensor connector	Combo sub-D; size DB, layout 7W2, 137W2SC30N40x (CONEC)
Dimensions	125 x 50 x 262 mm
Weight	2 kg
Operating voltage range	90-264 VAC, 50-60 Hz, 30 VA