

For current pricing, please see our website.

Text Updated  
4-23-14 - LF

CHAPTERS

Manual Stages

Motorized Stages

Multi-Axis Platforms

Actuators

Controllers

SECTIONS

Adjustment Screws

Micrometers

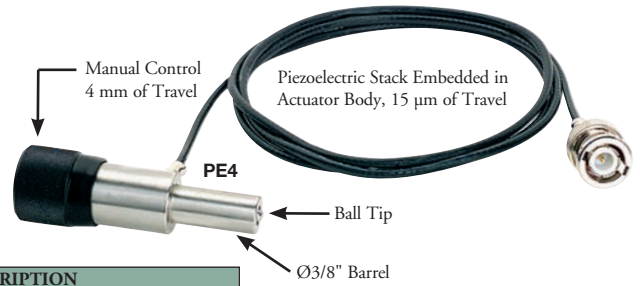
Piezoelectric Actuators

Motorized Actuators

Tutorials

## Piezoelectric Actuator

The PE4 incorporates one of our piezoelectric stacks (Item # AE0505D16F see below) and a manual 3/16" x 100 leadscrew. The manual adjuster has better than 1 μm resolution, which complements the 15 μm range of the piezo stack. When the PE4 is combined with our MDT694B or TPZ001 driver (see pages XXX and XXX - XXX), translation on the order of 10 nm is achievable.



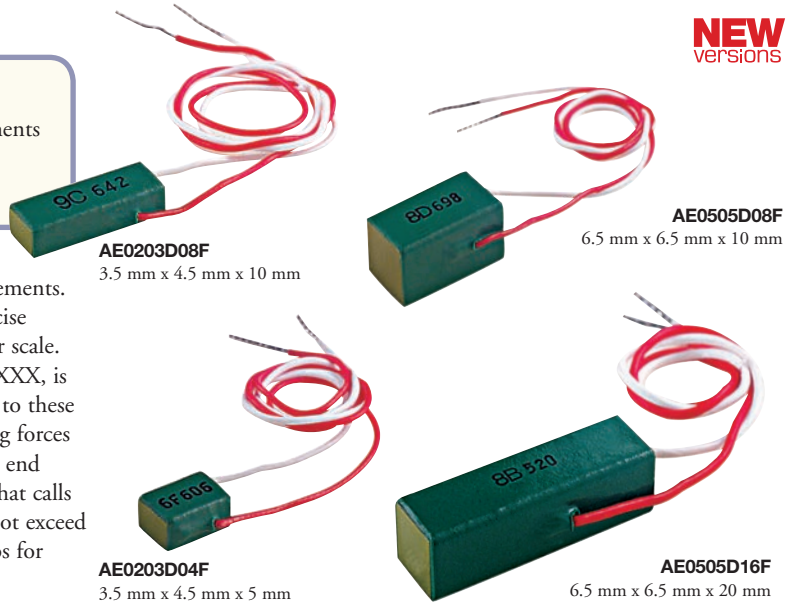
ITEM #	\$	£	€	RMB	DESCRIPTION
PE4	\$ 479.60	£ 345.31	€ 417.25	¥ 3,822.41	Piezoelectric Actuator, 4 mm of Coarse/15 μm of Fine Travel

## Piezoelectric Actuators

### Operating Precautions

- Do Not Use in Highly Flammable Environments
- Always Ensure Proper Drive Polarity (Red +)
- Do Not Exceed 85 °C

These piezoelectric actuators transform electrical energy into precisely controlled mechanical displacements. They are ideal for applications requiring rapid, precise positional changes on the nanometer or micrometer scale. A room-temperature epoxy, such as F120 on page XXX, is the recommended method for making connections to these piezoelectric stacks. When mounting, avoid bending forces and center the mechanical load on the piezoelectric end faces. If the actuator is incorporated into a design that calls for a preload, it is recommended that the preload not exceed 50% of the specified clamping force, which is 45 lbs for AE0203 models and 190 lbs for AE0505 models.



- **Fast Response Time:** 3x Resonant Frequency
- **Drive Voltage:** 0 - 150 VDC
- **Operating Temperature Range:** -25 to 85 °C

- **Recommended Drivers:** MDT693A, MDT694A, TPZ001, and BPC203 (See Pages XXX - XXX)



ITEM #	\$	£	€	RMB	DISPLACEMENT @ 150 V	DISPLACEMENT @ 100 V	CAPACITANCE @ 1 kHz, 1 V <sub>RMS</sub>	RESONANT FREQUENCY
AE0203D04F	\$ 72.80	£ 52.42	€ 63.34	¥ 580.22	4.6 ± 1.5 μm	3.0 ± 1.5 μm	0.09 μF ±20%	261 kHz
AE0203D08F	\$ 79.80	£ 57.46	€ 69.43	¥ 636.01	9.1 ± 1.5 μm	6.1 ± 1.5 μm	0.18 μF ±20%	138 kHz
AE0505D08F	\$ 130.80	£ 94.18	€ 113.80	¥ 1,042.48	9.1 ± 1.5 μm	6.1 ± 1.5 μm	0.75 μF ±20%	138 kHz
AE0505D16F	\$ 153.30	£ 110.38	€ 133.37	¥ 1,221.80	17.4 ± 2.0 μm	11.6 ± 2.0 μm	1.40 μF ±20%	69 kHz

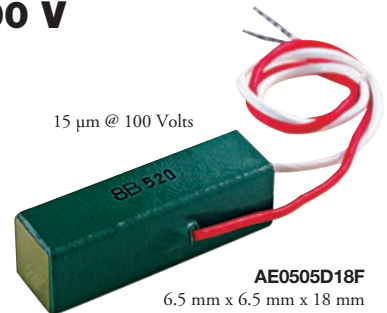
## Low-Voltage Actuator, Full Displacement at 100 V

### Operating Precautions

- Do Not Use in Highly Flammable Environments
- Always Ensure Proper Drive Polarity (Red +)
- Do Not Exceed 85 °C

This low-voltage actuator transforms electrical energy into precisely controlled mechanical displacements. The maximum displacement of 15 μm is achieved at the maximum input voltage (100 V).

When mounting, avoid bending forces by centering the mechanical load on the piezoelectric end faces. If the actuator is incorporated into a design that calls for a preload, it is recommended that the preload not exceed 95 lbs.



### Applying a Drive Voltage in Excess of the 100 V can Cause the Actuator to Fail

ITEM #	\$	£	€	RMB	DISPLACEMENT @ 100 V	CLAMPING FORCE	CAPACITANCE @ 1 kHz, 1 V <sub>RMS</sub>	RESONANT FREQUENCY
AE0505D18F	\$ 196.00	£ 141.12	€ 170.52	¥ 1,562.12	15 μm ± 10%	192 lbs (853 N)	1.6 μF	69 kHz