

## PZMU-2000 Piezo-Z Top Plate

The PZMU-2000 is a precise piezo Z-axis stage that can be attached to the top of a microscope's existing XY stage or be used in stand-alone applications. On select models of microscopes, ASI can mount a PZMU-2000 to an OEM stage. We can procure a manual OEM stage for you if necessary.

The PZMU-2000 consists of ASI's proven piezo-Z top plate mounted within a stand-alone housing. This system can be mounted to any horizontal surface, including on top of a manual XY stage of an upright microscope.

The optional PZM-C Controller compliments the ASI PZMU-2000, providing an LCD readout of position, an external focusing knob, RS-232 serial control, home and zeroing controls all in a small 6 x 4 inch (152 x 102 mm) footprint.

The PZMU-2000 has been specifically designed to provide a high resolution, and highly repeatable, means of controlling the Z position of a manual microscope stage. The XY axes would remain manually controlled by the original OEM stage controls. The PZMU-2000 accepts standard K-size slide inserts that are available for any sample, i.e., slides, Petrie dishes, multi-well plates, etc. The slide insert is moved in the Z-axis via a piezo element with a range of 100  $\mu\text{m}$  and with nanometer accuracy (200  $\mu\text{m}$  and 500  $\mu\text{m}$  ranges are also available). By moving the sample in the Z-plane, any objective can be used, eliminating twisting wires or needed spacers as required when a piezo element is put onto a single objective. The piezo stage can be controlled remotely with a 0-10 volt D.C. analog input voltage, or optionally, with a PZM-2000 Controller.



### Features

- Closed-loop control of Z-axis for precise and highly repeatable focusing
- Nanometer-scale resolution, repeatability, and accuracy
- Proven operation with many popular software packages

***We Create Solutions***

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## PZMU-2000 Specifications

(XY axis range of travel)	(Standard OEM Stage)
Z axis range of travel ( $\pm 5\%$ )	100 $\mu\text{m}$ (200 $\mu\text{m}$ and 500 $\mu\text{m}$ versions optional)
Z axis resolution	1.5 nm
Z axis repeatability	$\pm 1$ nm
Z axis maximum velocity with settling time	5 mm/sec (~ 10 ms per move)
Z axis resonant frequency (unloaded)	> 1 KHz
Z axis top plate maximum load	500 grams
Z axis top plate stiffness ( $\pm 20\%$ )	3 N/ $\mu\text{m}$
Z axis top plate in-plane tilt (typical)	10 $\mu\text{rad}$
Dimensions (L x W x H)	242 x 176 x 19 mm (9½" x 7" x ¾")



## PZM-C Controller Specifications

Computer piezo control	RS-232 Serial
Manual piezo control	Front panel knob
External piezo control	0 – 10 VDC Pass-thru
Position information (regardless of control)	LCD Display
Control buttons	"Home" and "Zero"
Power module	12 VDC



## NANO-DRIVE™ Piezo Controller Specifications

Analog input (front panel BNC)	0.0 to 10.0 Vdc
Stage interface	1.5 m cable with DB9 connector
Front panel adjustment	Sensor Offset
Output voltage range	-5 to +150 V
Output current	150 mA
Power requirement	120 VAC



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