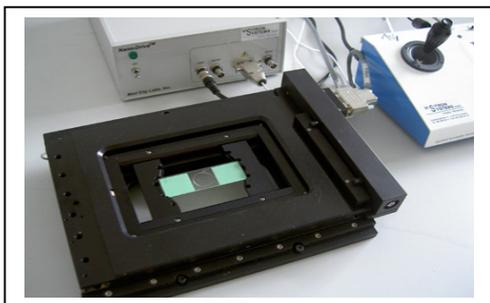


Microscope Peripherals

XYZ Automated Stage

PZ-2000 with Piezo Z-axis Top Plate for Inverted Microscopes

The PZ-2000 has been specifically designed to provide a high resolution, and highly repeatable, means of controlling the X, Y, and Z position of an inverted microscope's stage. The XY axes derive their precise control through the use of closed-loop DC servomotors employing high-resolution rotary encoders for positioning feedback. By using closed-loop control for the stage position, there is no chance that the stage will become lost, as can occur with open-loop micro-stepped stages after a number of moves and direction changes. The XY stage utilizes crossed-roller slides, high-precision lead screws, and zero-backlash miniature geared DC servomotors for smooth and accurate motion. The top plate of the stage 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 μm with nanometer accuracy. 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 microprocessor-controlled MS-2000 control unit provides for RS-232 and USB communication with a host computer for control of the XYZ axis.



Features:

- Closed-loop control of the X, Y, and Z-axes for precise positioning and highly repeatable focusing
- Wide dynamic speed range with adjustable trapezoidal move profiles
- Smooth adjustable dual-range joystick control Backlit LCD display shows X, Y, and Z coordinates "Zero" and "Home" button for simple stand-alone operations

Specifications for Standard Configuration

XY axis range of travel	110 mm x 90 mm
XY axis resolution (encoder step)	0.088 μm
XY axis lead screw accuracy	0.25 $\mu\text{m}/\text{mm}$
XY axis RMS repeatability	< 0.7 μm
XY axis maximum velocity	7 mm/sec
Z axis range of travel ($\pm 5\%$)	100 μm = PZ-2000
	200 μm = PZ-2200
Z axis resolution	1.5 nm
Z axis repeatability	± 1 nm
Z axis maximum velocity with settling time	5 mm/sec
Z axis resonant frequency (unloaded)	> 1 KHz
Z axis top plate maximum load	500 grams
Z axis top plate stiffness ($\pm 20\%$)	3 N/ μm
Z axis top plate in-plane tilt (typical)	10 μrad

PZM-2000 Piezo Z-axis Control for Manual Inverted Stages

If you do not require automated XY movement, but do require automated Z-axis positioning for acquiring precise Z-axis stacks, then the PZM-2000 is the solution. On select models of microscopes, ASI can modify or exchange your existing OEM stage with a PZM-2000 unit with information about your current setup and see if we can provide you with nanometer-scale Z-axis positioning.

