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INSTRUMENTATION

MS-4400 XYZ Automated Stage

The MS-4400 XYZ provides a high resolution and highly repeatable means of controlling the X, Y, and Z position of the microscope stage. The MS-4400 XY stage has been specifically designed for larger upright microscopes like the Leica DMR-series, the Nikon Eclipse 80i, the Olympus BX series, and the Zeiss Axioplan, Axioskop 2, and Axio Imager. All 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 of 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 MS-4400 XY stage utilizes crossed-roller slides, a high-precision lead screw, and zero-backlash miniature geared DC servomotors for smooth and accurate motion. The Z-axis drive also uses ASI's proven line of closed-loop motor drives, each custom fitted to the microscope. The microprocessor-controlled MS-2000 control unit provides for RS 232 and USB communication with a host computer.

Features

- Closed-loop DC servo control of the X, Y, and Z-axes for precise positioning and highly repeatable focusing
- Wide dynamic speed range with XY joystick control
- Utilizes ASI's proven Z-axis drives
- Z-axis clutch for easy switching between manual and motor-driven focus control
- Backlit LCD display shows X, Y, and Z coordinates
- "Zero" and "Home" button for simple stand-alone operations
- Compact ergonomic tabletop control unit size is 6"D x 9"W x 3"H
- Microprocessor control with RS-232 serial and USB communications
- Proven operation with many popular software packages



Options

- X, Y, and Z-axis Linear Encoders for high-accuracy positioning and focus control
- Stage Inserts to hold a variety of slides, dishes, sealed glass chambers, multiwell microplates, perfusers, heaters, and many other special items
- Auto-Focus for stages with ASI Z-axis drives (requires NTSC, PAL, or S-Video analog signal)
- Other lead screw pitches are available
- Zeiss – Axiolab, Axiohot II, Axioskop FS, AxioStar, Standard 16, Universal



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MS-2000 Small XY Stage

Lead Screw Options

Lead Screw Pitch Options	Rotary Encoder Resolution	Maximum Speed
25.40 mm (Ultra-coarse)	88 nm	28 mm/sec
12.70 mm (Super-coarse)	44 nm	14 mm/sec
6.35 mm (Standard)	22 nm	7 mm/sec
1.59 mm (Fine)	5.5 nm	1.75 mm/sec
0.635 mm (Extra-fine)	2.2 nm	0.7 mm/sec

*Standard Lead Screw Accuracy is 0.25 μm per mm.

Specifications for Standard Configuration

XY axis range of travel	100 mm x 100 mm
XY axis resolution (encoder step)	22 nm
XY axis RMS repeatability	< 700 nm
XY axis maximum velocity	7 mm/sec
Z axis resolution (encoder step)	50 nm
Z axis repeatability	± 100 nm
Z axis maximum velocity	0.6 mm/sec

Linear Encoder Options

Axis	Resolution	Scale Accuracy
XY	10 nm	± 3 μm per length of scale
Z (12 mm and 15 mm stroke)	50 nm	0.025 μm per mm