

Wellplate-Transfer Robot System

ASI's Wellplate-Transfer Robot System is an automated platform designed to handle multiwell microplates. At the center of the system is the breadboard-mountable WPTR-01 three-axis robot, which automatically transfers standard wellplates from eleven-slot hotels to an ASI automated XY stage.

The ASI stage provides high resolution and high repeatability, and can be mounted onto any common research-grade inverted microscope, as a stand-alone scanning system, or in OEM

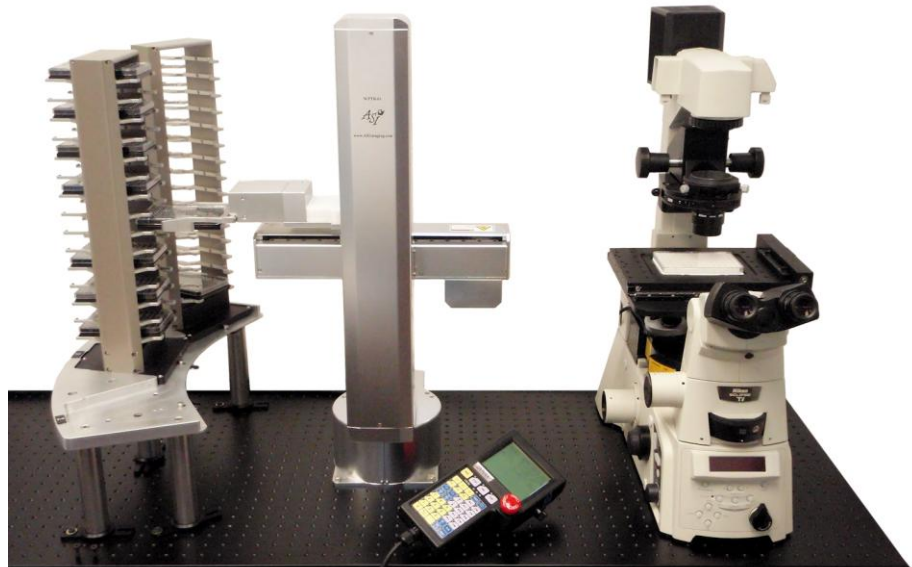
implementations. ASI stages utilize crossed-roller slides, high-precision lead screws, and zero-backlash miniature geared DC servomotors with high-resolution rotary encoders for smooth and accurate motion, and long life in demanding applications.

The focus can also be automated with one of ASI's proven DC servomotor Z-drives that can be retrofitted to the fine-focus shaft of most microscopes, or with one of ASI's patented piezo-Z top plate stages for nanometer-scale focusing. In stand-alone implementations, ASI's linear stages can translate either optics or a stage to perform focus operations.

The robot can be controlled with its Teaching Pendant, or through RS-232 serial communication. ASI's stage and Z-drive control units provides for RS-232 and USB communication with a host computer.

Features

- High speed 3-axis robot with electric gripper to handle standard 128x86 wellplates
- Up to four 11-slot hotels in fixed configuration, or more hotels in carousel configuration
- Closed-loop DC servo control on XY stages and Z-drives for precise positioning
- "Zero" and "Home" buttons, and XY joystick control, for stand-alone stage operations
- Teaching Pendant for stand-alone robot operations, with emergency stop button
- Microprocessor control with RS-232 serial and USB communications
- Proven operation with many popular software packages
- Suitable for stand-alone, OEM, and specialty applications



We Create Solutions

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Robot Specifications in Standard Configuration

Wellplate size (Society of Biomolecular Sciences standard)		127.7 mm x 85.6 mm
Robot Type		Cylindrical Coordinates, plus Gripper
Maximum Operational Range	Radius, R	270 mm
	Theta, T	300 degrees
	Zeta, Z	300 mm
Maximum Operational Speed	Radius, R	300 mm/sec
	Theta, T	180 degrees/sec
	Zeta, Z	300 mm/sec
Repeatability	Radius, R and Zeta, Z	± 0.1 mm
	Theta, T	± 0.05 degrees
End-Effector		Electric Gripper
Payload		0.2 kg
Weight		Approximately 15 kg

Stage Specifications in Standard Configuration (with 6.35 mm pitch Lead Screws)

XY axis Range of Travel	114 mm x 90 mm
XY axis Resolution (rotary encoder step)	0.088 µm
XY axis RMS Repeatability	< 0.7 µm
XY axis Maximum Velocity	7 mm/sec

Stage Lead Screw Options

Lead Screw Pitch Options	Rotary Encoder Resolution	Maximum Speed
25.4 mm	88 nm	25 mm/sec
12.70 mm	44 nm	14 mm/sec
6.35 mm (Standard)	22 nm	7 mm/sec
1.59 mm	5.5 nm	1.75 mm/sec

◎ Standard Lead Screw Accuracy is 0.25 µm per mm

Stage Linear Encoder Options

Axis	Resolution	Scale Accuracy
XY	20 nm	0.5 µm per 10 mm 1.5 µm per 100 mm

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