Models: P3, P3A

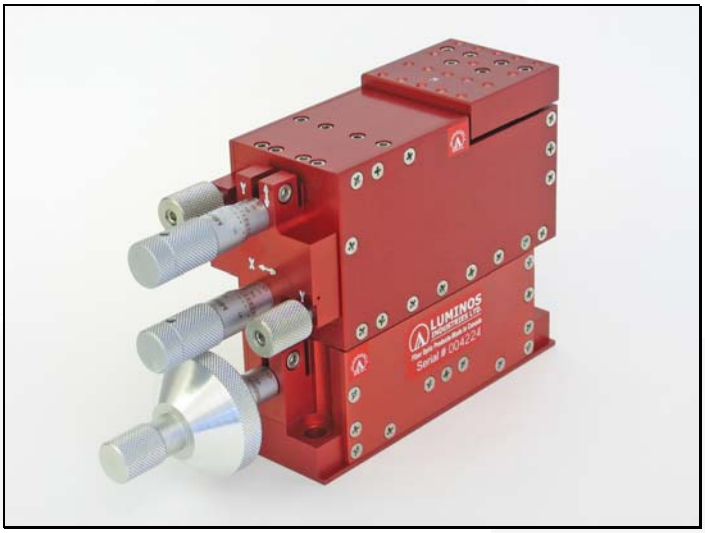
XYZ Manual 3-Axis Stage

SUPERIOR PERFORMANCE

Imagine a positioning system so stable and easy to adjust that singlemode optical fiber alignment is as simple as tuning a radio! No need to let go of the micrometers while adjusting - the I3000 is *extremely* touch insensitive. And with the patented ergonomic inline design, all the micrometers are easily accessible on one side - just rest your hand comfortably on the table and enjoy the ease and efficiency of quickly aligning any type of fiber. No fiber alignment challenge is too difficult - even 1-2 micron core lensed fibers can easily be aligned. This is possible because of the radical departure from conventional design.

FEATURES

- Patented Inline actuators provide ease of access.
- Patented 25x Ratio Drive™ system affords superior resolution for far less cost.
- Small footprint allows multiple unit workstations.
- Onboard controller for actuators avoids high cost of separate motion controllers.
- Damped exterior shell design provides superior vibration and touch insensitivity.
- Lightweight aluminum construction allows system to be moved easily by other motion equipment.
- High mechanical stiffness affords rugged and stable base system.
- Patented linear dual flexure Z offers frictionless repeatable straight travel.



INNOVATION

The Luminos I3000 benefits from our patented Ratio Drive™ while all other stages are direct-drive. A standard micrometer, which has about 1/3 the backlash of a differential micrometer, is further improved by the 25x Ratio Drive™ resulting in a backlash of only 20 nanometers and an incredible single-sided resolution of just 1 nanometer!

The I3000 is extremely vibration and temperature insensitive. In an ordinary lab *without* an optical table, normal temperature fluctuations result in only 0.03 dB variation with *no* drift in a typical singlemode alignment for over a month.

ACCESSORIES

With accessories ranging from fiber array holders to contact sensors, Luminos can get you out-fitted and up-and-running quickly on your applications

AUTOMATION

With this advanced design, upgrading to automation is easy and inexpensive. Our standard, low cost stepper motor option provides the I3000 with a resolution of 4 nanometers and a 1/2 millimeter of travel on the X and Y axes. An additional 2 millimeters of manual travel is still available using the coarse adjustments. If you require more travel to be available using the actuator, consider the I3005. The Z axis provides a larger ½ inch (12.5mm) travel on the focal axis and a resolution of 100 nanometers. Using the internal Linear Motors option, the I3000 is capable of ½ nanometer movements on the X and Y axes superimposed on the stepper motor and coarse adjustment travel.

ORDERING INFORMATION

Part #	Description
P3-M-M-M-1-N-H-N	**I3000**: 3-Axis Positioner, Z-Axis Actuator: Manual Imperial Micrometer, X-Axis Actuator: Manual Micrometer, Y-Axis Actuator: Manual Micrometer, XY Coarse Adjust: 40 pitch set screw, XY Linear Motors: None, Mounting Axis: Horizontal, Side Damper: None
P3A-M-M-M-H-N	**I3005**: 3-Axis Positioner (5x), Z-Axis Actuator: Manual Imperial Micrometer, X-Axis Actuator: Manual Micrometer, Y-Axis Actuator: Manual Micrometer, Mounting Axis: Horizontal, Side Damper: None

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www.luminosindustries.com 1 (613) 225-7661

I3000/I3005 Specifications

Travel

Axis		Actuator[1]	Coarse	Total
Z – focus		12.7mm (0.5")	N/A	12.7mm (0.500")
I3000	Y – vertical	0.5mm (0.02")	2mm (0.080")	2.5mm (0.1")
	X – lateral	0.5mm (0.02")	2mm (0.080")	2.5mm (0.1")
I3005	Y – vertical	2.5mm (0.1")	N/A	2.5mm (0.1")
	X – lateral	2.5mm (0.1")	N/A	2.5mm (0.1")

Setability[2] (Micrometer)

Axis		Resolution	Movement / Division
Z		0.25 micron (10µ-inch)	0.001"
I3000	Y	10nm (0.4µ-inch)	1µm - 25x Ratio Drive™
	X	10nm (0.4µ-inch)	1µm - 25x Ratio Drive™
I3005	Y	50nm (2µ-inch)	5µm - 5x Ratio Drive™
	X	50nm (2µ-inch)	5µm - 5x Ratio Drive™

Resolution (Stepper Motor)

Axis		Resolution	Total Steps
Z		100nm (4µ-inch)	128 000
I3000	Y	4nm (0.16µ-inch)	128 000 - 25x Ratio Drive™
	X	4nm (0.16µ-inch)	128 000 - 25x Ratio Drive™
I3005	Y	20nm (0.8µ-inch)	128 000 - 5x Ratio Drive™
	X	20nm (0.8µ-inch)	128 000 - 5x Ratio Drive™

Stage Configuration & Arc Error Motion

Axis	Flexure Type	Arc Error
Z	Dual	None - True Linear Motion
Y	Single	Max 30µm - Arc Error in Z only
X	Single	Max 30µm - Arc Error in Z only

Linear Stiffness

Along Axis	Stiffness	Comments
Z	130 kN/m	measured at the rotation center
Y	95 kN/m	measured at the rotation center
X	40 kN/m	measured at the rotation center

Torsional Stiffness

About Axis	Stiffness	Comments
Z – roll	75Nm/rad	measured at the rotation center
Y – yaw	100Nm/rad	measured at the rotation center
X – pitch	130Nm/rad	measured at the rotation center

Maximum Load

Static Load	Transient Load	Comments
2.2 lbs (1kg)	10 lbs (4.5kg)	stage must be protected from shock loading during transport and usage

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