

## M-850K Vacuum Hexapod 6-Axis Positioner

### Parallel-Kinematics System for Wide Temperature Ranges



This custom hexapod was designed to work in a thermo-vacuum chamber

- 6 Degrees of Freedom, Works in Any Orientation
- Vacuum Compatible up to  $10^{-6}$  hPa
- 200 kg Load Capacity (Vertical)
- Repeatability to  $\pm 1 \mu\text{m}$
- Encoder Resolution to 5 nm

Model	Operating temperature range	Storage temperature	Travel ranges	Dimensions
M-850KTVH Vacuum Hexapod	-10 bis +25 °C	-20 bis +40 °C	$\pm 50$ mm (X,Y), $\pm 25$ mm (Z), $\pm 15^\circ$ ( $\theta_x, \theta_y$ ), $\pm 30^\circ$ ( $\theta_z$ )	$\varnothing$ 350 mm 330 mm height

## M-850K Weatherproof Hexapod

### Ultra-High-Precision Hexapod for Outdoor Operation



This customer-specific M-850KWAH Hexapod can operate outdoors at altitudes up to 5000 m

- Load Capacity to 750 N
- Unidirectional Repeatability to  $5 \mu\text{m}$
- Clear Aperture  $\varnothing$  420 mm
- Long Lifetime: 2 Million Cycles
- Drive: Brushless Motors
- Correspond to protection class IP 64
- Corrosion Protection

Model	Travel Range X / Y / Z	Max. load capacity	Mass	Dimensions
M-850KWAH Weatherproof Hexapod	$\pm 10 / \pm 11 / \pm 16$ mm	750 N	46 kg	Outer $\varnothing$ 580 mm height 357 mm

## M-810 Miniature Hexapod

### High Precision in a Small Package



The miniature M-810 Hexapod provides long travel ranges despite its compact design

- Most-Compact Hexapod in the PI Portfolio
- Travel Range  $40 \times 40 \times 13$  mm
- Resolution of a Single Strut  $< 100$  nm
- Integrated Driver Electronics

Model	Load capacity	Travel range X / Y / Z	Travel range $\theta_x / \theta_y / \theta_z$	Max. velocity	Dimensions
M-810.00	5 kg	$\pm 20$ mm $\pm 20$ mm $\pm 6,5$ mm	$\pm 11^\circ$ $\pm 11^\circ$ $\pm 30^\circ$	10 mm/s	Outer $\varnothing$ 100 mm height 118 mm

# Hexapod Options & Accessories



Photometer card



The F-206.MC6 manual control pad facilitates system setup and testing procedures. It permits independent motion in all degrees of freedom with programmable step size

## Optical Metrology Boards

The controllers for the F-206, M-840 and M-850 Hexapod systems can be equipped/retrofitted with the following photometer cards: F-206.VVU (2-channel, visual) and F-206.iiU (2-channel, IR).

## F-206.MC6 6D Interactive Control Pad Upgrade

The F-206.MC6 manual control pad facilitates system setup

and testing procedures. It consists of a board that plugs into the Hexapod controller and a control pad with six digital "potentiometer" knobs (one for each degree of freedom).

The manual pad works seamlessly with the Hexapod software, and allows programmable step sizes of 1  $\mu\text{m}$  to 500  $\mu\text{m}$  (linear) and 0.001 to 0.5deg (angular) per step.

External positioning commands (via the computer interface) can be intermixed with manual positioning input without loss of the true position, because both inputs operate on the same position registers of the Hexapod controller. The control pad comes with a 3 m cable. A 3 m extension cable is available as part number C-815.MC6.

More Options see F-311 PIMotion&Vision™ System, F-361 Optical Power Meter and F-603 Fiber, Objective and Waveguide Holders. ([www.pi.ws](http://www.pi.ws))

## Technical Data

Model	F-206.iiU, F-206.VVU Optical Metrology Boards
Optical power range	5 nW – 10 mW
Analog input voltage range	0 – 10 V
A/D resolution	16-bit
Sample rate	10 kHz
Bandwidth	300 Hz (optical input), 10 kHz (electrical input)
Max. sensitivity at:	880 nm (visible, F-206.VVU); 1550 nm (IR range, F-206.iiU)
40% sensitivity at:	480 / 1040 nm (visible, F-206.VVU); 850 / 1680 nm (IR range, F-206.iiU)

## F-206.NCU Rapid NanoAlign Upgrade

For applications where alignment with nanometer-range resolution is required, or where rapid mapping of the entire cross-section of a component in as short a time as possible is desired, the F-206.NCU Rapid NanoAlign upgrade is recommended. It consists of

the P-611.3SF XYZ piezo-drive NanoCube® (see p. 2-52) and the E-760 controller board (see p. 2-138), which is installed in the F-206 controller.



F-206.NCU Rapid NanoAlign Upgrade consists of the P-611 NanoCube® piezo nanopositioner and the E-760 controller card