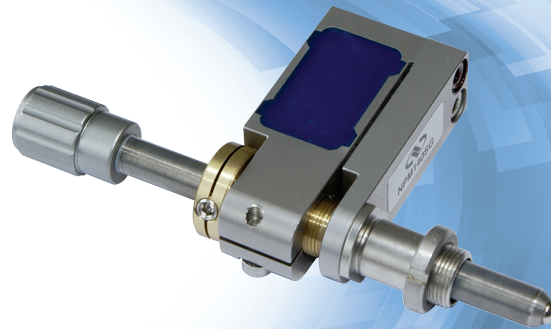


Nanopositioning Piezoelectric Micrometer Adapter

NPM140 SERIES



The NPM140 Piezoelectric Micrometer Adapter provides sub-nanometer positioning capability for manual micrometers and adjustment screws, making them a simple and ideal solution for motorizing your existing manual actuators with ultra-fine resolution.

Motorize Existing Manual Micrometer and Screw

The NPM140 Piezoelectric Micrometer Adapter is mechanically compatible with all Newport micrometers and adjustment screws featuring a standard 0.375" (9.5mm) mounting shank.

Motorize a Manual Stage or Optical Mount

The NPM140 Piezoelectric Micrometer Adapter is mechanically compatible with all Newport stages and mounts that featuring a standard 0.375" (9.5mm) mounting shank for the actuator. Please note that the adapter holds the manual actuator 22 mm back from its normal position. Hence, in order to use the total travel range provided by the mechanic, actuators with 22 mm longer travel than recommended should be used with all devices.

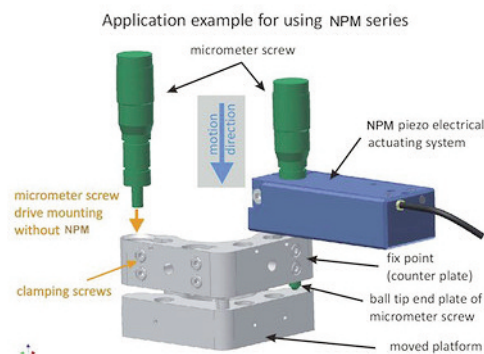
Sub-Nanometer Positioning Resolution

With positioning resolution as low as 0.1 nm, the NPM140 Piezoelectric Micrometer Adapter makes ultra-fine adjustments with resolution only limited by the noise of the control electronics.

Large Piezoelectric Travel Range

An extraordinary long piezo travel range of 140 μm is provided by a sophisticated wire EDM flexure system. The flexure serves also as a linear guide for the actuator tip.

- Sub-nanometer positioning resolution
- Large piezoelectric travel range
- 100 N axial load capacity
- Nanometer scale automated positioning of manual products
- Optional strain-gauge position feedback



SPECIFICATIONS

	NPM140
Open loop travel range ($\pm 10\%$) ⁽¹⁾ , (μm)	140
Closed loop travel range ⁽¹⁾⁽²⁾ (μm)	90
Open loop resolution ⁽³⁾ (nm)	0.1
Closed loop resolution ⁽²⁾ (nm)	1
Typ. Repeatability ⁽²⁾ (nm)	35
Capacitance ($\pm 20\%$) (μF)	1.7
Resonant frequency, without drive (Hz)	670
Axial stiffness (N/ μm)	0.4
Max. axial load (N)	100
Weight (g)	125

¹⁾ Typical value measured with NPC3 and NPC3SG, (-20 V to +130 VDC range).

²⁾ Applies to NPM140SG in closed-loop control only.

³⁾ Equal to rms noise value measured with NPC3 and NPC3SG controller.

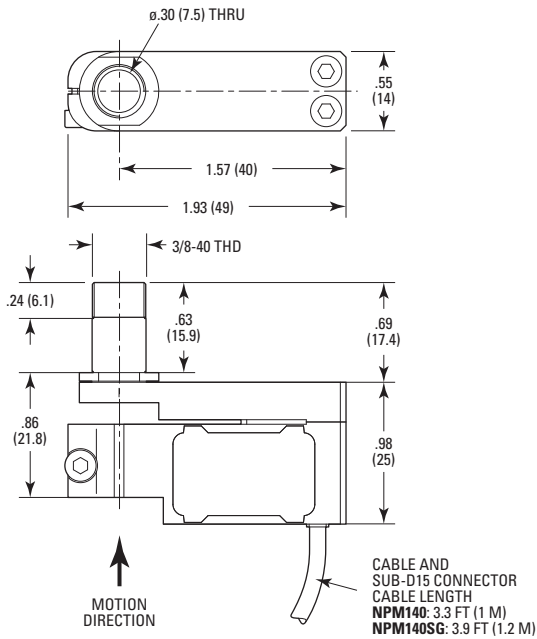
Optional Integrated Strain-Gauge for Closed-Loop Operation

Closed-loop versions feature integrated position feedback through a high resolution strain-gauge position sensor for highly accurate and repeatable motion which also compensates for actuator creep. For highest position stability and highest temperature-insensitive performance, the sensor is assembled in a full Wheatstone bridge design. The NPM140SG can be operated in open or closed-loop control.

High Load Capacity

With a load capacity of 100 N, our NPM140 Piezoelectric Micrometer Adapters have a substantial push force.

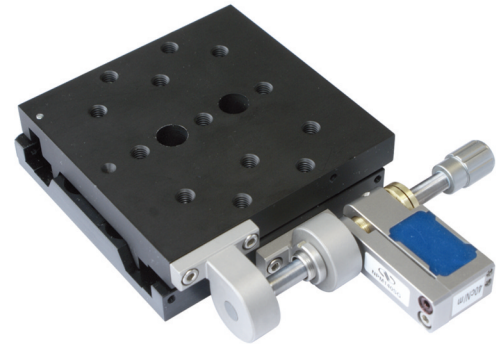
DIMENSIONS



MODEL SHOWN: NPM140
DIMENSIONS IN INCHES (AND MILLIMETERS)

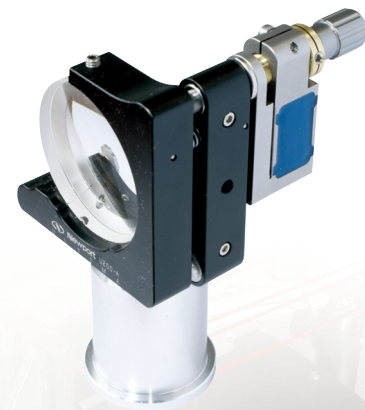
RECOMMENDED CONTROLLERS/DRIVERS

Model	Description
XPS-D	1- to 8-axis universal high-performance motion controller/driver
XPS-DRV11	Universal digital driver card for stepper, DC, brushless and direct motors
XPS-RL	1- to 4-axis universal high-performance motion controller/driver
XPS-DRVP1	NanoPositioning drive module for piezo-stack based products
NPC3	3-channel piezo stack amplifier, open-loop control
NPC3SG	3-channel piezo amplifier, strain-gauge position control



ORDERING INFORMATION

Model	Description
NPM140	Piezo-electric Open-loop Micrometer Adapter, 140 μ m
NPM140-D	Piezo-electric Open-loop Micrometer Adapter, 140 μ m, XPS
NPM140SG	Piezo-electric Micrometer Adapter, 140 μ m, Strain-gauge
NPM140SG-D	Piezo-electric Micrometer Adapter, 140 μ m, Strain-gauge, XPS



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