

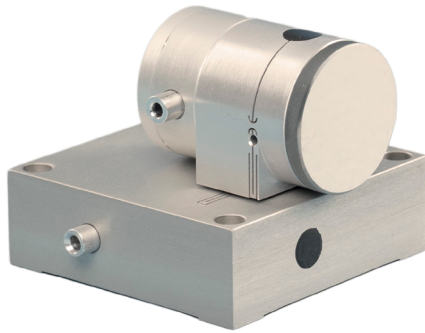
Nano-MTA Series

Features

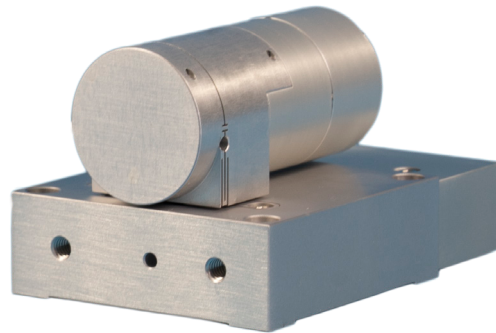
- ▶ 400 Hz high speed scans
- ▶ Sub-nanoradian stability
- ▶ One or two axis tip/tilt piezo nanopositioner
- ▶ 2, 5 or 10 mrad ranges of motion
- ▶ **pico** sensor technology
- ▶ Mount in any orientation
- ▶ Closed loop control

Typical Applications

- ▶ High speed, high accuracy beam steering
- ▶ Astronomy
- ▶ Interferometry
- ▶ Optical trapping
- ▶ FBG writing
- ▶ Microscopy
- ▶ Active optics



Above: Nano-MTA2 with 1" optic attached.



Right: Nano-MTA2X10 constructed from aluminum.

Product Description

The Nano-MTA Series are one and two axis piezo tip/tilt nanopositioners. Designed to hold mirrors and with nanoradian resolution under closed loop control, the Nano-MTA Series is ideal for beam steering, tracking, and scanning. Position sensors utilizing proprietary PicoQ[®] technology provide high stability and low noise performance. The exceptional performance of PicoQ[®] sensors enable high resolution step performance[†]. The Nano-MTA Series is capable of continuous, high speed scans at 400 Hz and step response times down to 2 milliseconds. Included Nano-Drive[®] electronic controllers include sensor electronics, proportional integral feedback control, and 150V amplifiers. The high resolution, high stability performance of the

Nano-MTA2 has been employed in the Advanced LIGO experiment and other highly sensitive interferometry and optical experiments. It is ideal for extreme metrology applications.

[†] Technical Note T-003 "High resolution steps for angular displacement using the Nano-MTA2"

Compatible Software



Examples, tutorial, and Mad City Labs Nano-Route[®] 3D motion control software



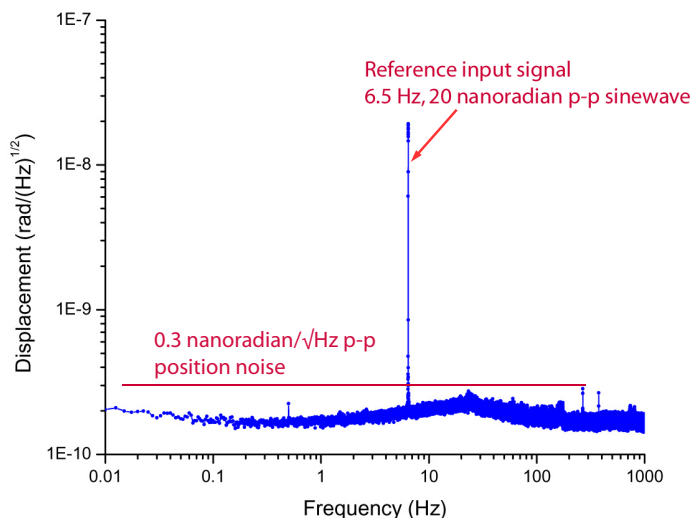
Technical Specifications

Range of motion (Nano-MTA)	2.0 mradian
Resolution.....	4.0 nradian
Range of motion (Nano-MTAX).....	5.0 mradian
Resolution.....	10 nradian
Range of motion (Nano-MTAX10).....	10.0 mradian
Resolution.....	20 nradian
Resonant Frequency - Nano-MTA2/2X	
X axis (2mrad/5mrad)	4.0kHz/3.8kHz $\pm 20\%$
Y axis (2mrad/5mrad)	1.3kHz/1.0kHz $\pm 20\%$
Resonant Frequency - Nano-MTA2X10	
X axis	2.2kHz $\pm 20\%$
Y axis.....	410Hz $\pm 20\%$
Scanning Speed	up to 400 Hz
Optics	25mm diameter mirror mounting area*
Body Material	Al
Controller	Nano-Drive® Series

Nano-MTA2/2X resonant frequency is with a 25mm diameter x 3mm glass mirror.

* Mirrors can be attached to the Nano-MTA2 using Milbond adhesive available from Edmund Optics - stock number NT53-288.

Ultra Low Position Noise



Measured position noise of the Nano-MTA2 shows the system's exceptional stability.

Related products

- Nano-Theta

