

# Nano-HS Series

## Features

- ▶ High speed, multi-axis
- ▶ XY and XYZ configurations
- ▶ Z-axis step response time down to 2ms
- ▶ Z-axis scans up to 300 Hz
- ▶ Closed loop control
- ▶ Picometer positioning resolution
- ▶ **pico**™ sensor technology

## Typical Applications

- ▶ High speed, high resolution positioning
- ▶ Metrology
- ▶ AFM
- ▶ SPM

פד"מ-טק (1991) בע"מ 02.583.2511  
<Michael.Storch@pazam-tech.co.il>

פד"מ-טק (1991) בע"מ

מייקל סטורץ' | 02.583.2511

PaZaM-tech@pobox.com

www.PaZaM-tech.co.il

## LabVIEW Compatible USB Interfaces



Examples, tutorial, and  
Nano-Route™ 3D supplied  
with Nano-Drive™ USB  
interfaces.



Nano-HS2 (XY motion)  
constructed from aluminum.



Nano-HS3 (XYZ motion)  
constructed from aluminum.

## Product Description

The Nano-HS Series is a high speed, multi-axis, precision nanopositioning system with picometer positioning resolution. Offering maximum versatility, the Nano-HS can be configured to provide XY or XYZ motion. Internal position sensors utilizing proprietary **pico**™ technology provide absolute, repeatable position measurement under

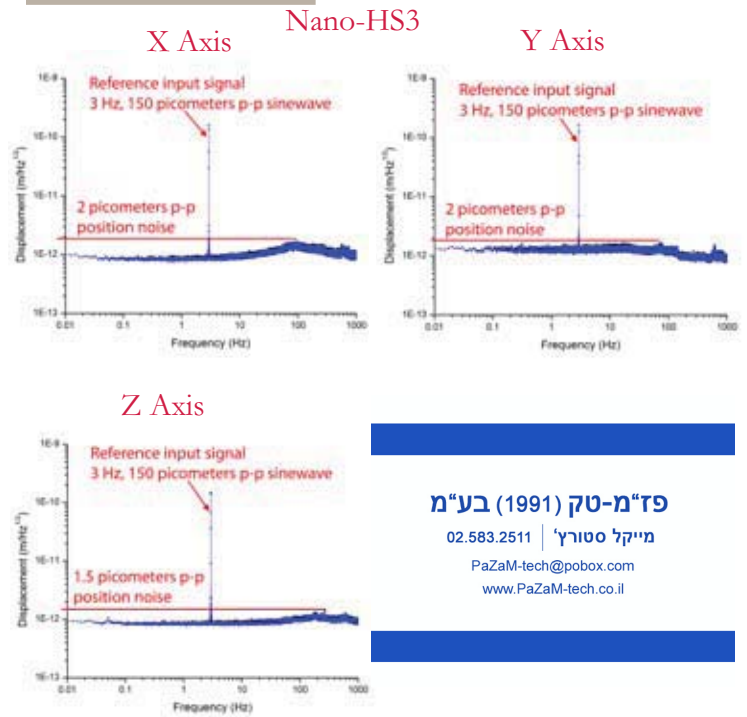
closed loop control. The compact footprint, ultra-low noise characteristics, and a Z-axis resonant frequency of 5kHz make it ideal for metrology applications that require noise floors less than 10 picometers and/or high speed performance.

## Technical Specifications

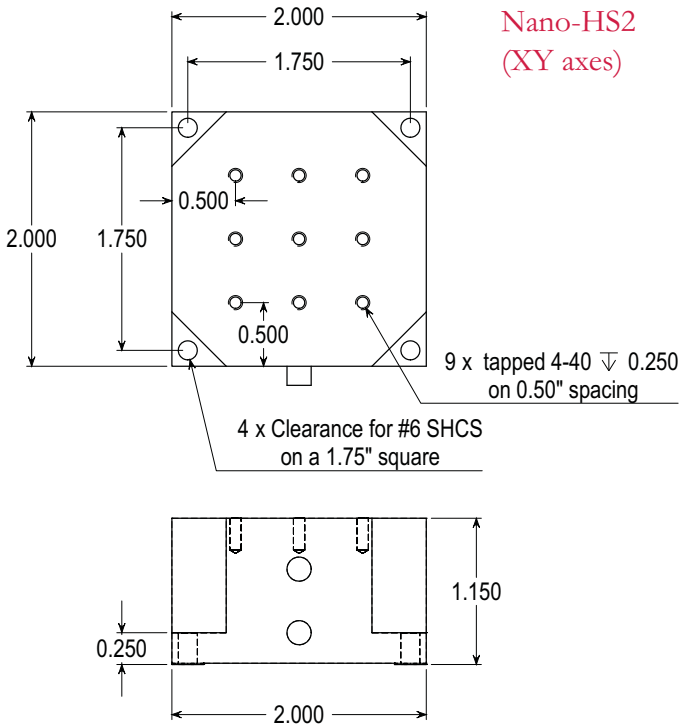
Range of motion (XYZ) ..... 10  $\mu\text{m}$   
 Resolution ..... 0.01 nm  
 XY (HS2) Resonant Frequency ..... 1.5 kHz  $\pm 20\%$   
 XY (HS3) Resonant Frequency ..... 1.0 kHz  $\pm 20\%$   
 Z (HS3) Resonant Frequency ..... 5.0 kHz  $\pm 20\%$   
 Scanning Speed ..... up to 300 Hz  
 Stiffness (Z-axis) ..... 8 N/ $\mu\text{m}$   
 Recommended max. load (horizontal)\* ..... 0.1 kg  
 Recommended max. load (vertical)\* ..... 0.1 kg  
 Body Material ..... Al, Invar or Titanium  
 Controller ..... Nano-Drive™

\* Larger load requirements should be discussed with our engineering staff.

## Low Position Noise



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Note: All Dimensions in Inches

