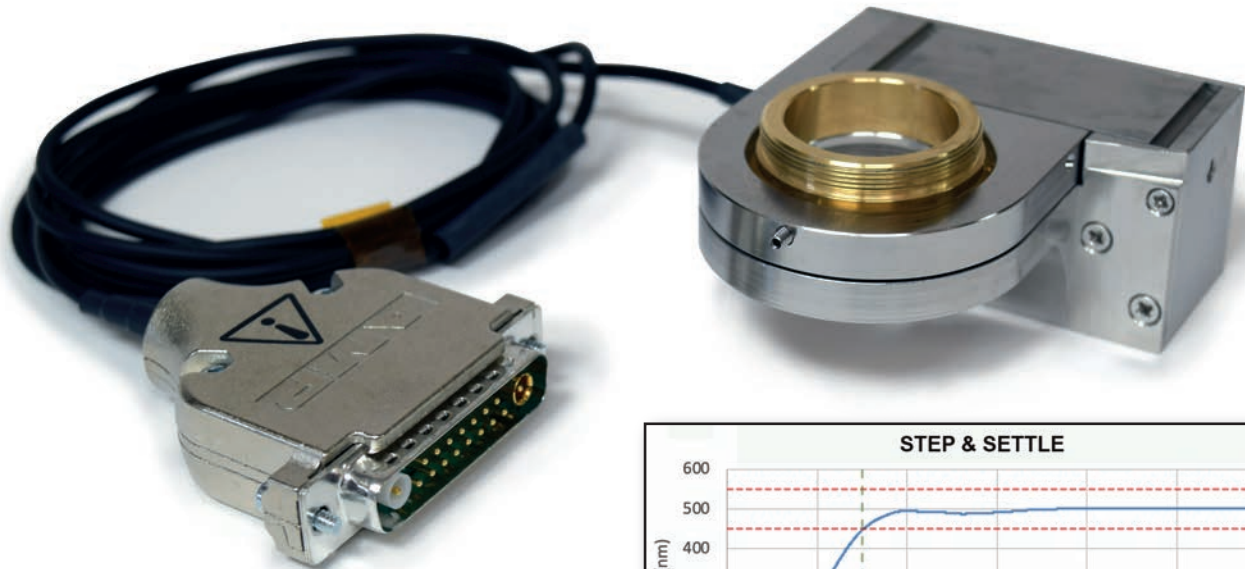


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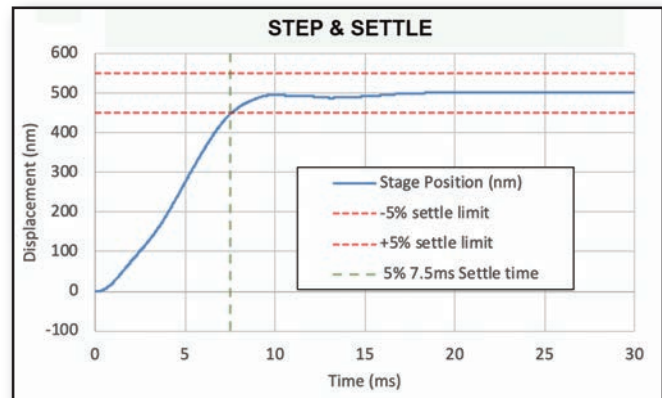
NanoScanOP 400

Nanopositioning Piezo Objective Scanner



Applications

- Optical sectioning producing 3D images
- Autofocus systems for time lapse imaging
- High content screening
- Surface analysis
- Wafer inspection
- Scanning interferometry



Settling time of the NanoScanOP400 stage with NPC-D-6110 Controller with 150g load.

The NanoScanOP 400 provides the fastest step and settle time of any objective positioner available. Incorporating capacitive feedback sensors, it also has market leading positioning accuracy and resolution. Compatible with most microscopes and objective lenses the system has user configurable settings optimized for different objective sizes, weights, and performance needs. The user simply selects the best setting for their application.

Key Features:

- 400µm closed loop travel range (450µm open loop range)
- Capacitive positioning sensors give sub nanometer positioning resolution and repeatability
- Made from stainless steel providing greater mechanical stiffness (faster) and temperature stability (lowest drift).
- The stage is a flexure guided system. The friction free flexures are designed to provide high stiffness and to minimize off axis motions giving high repeatability and faster cycle times.
- Suitable for upright and inverted applications.
- Connectors with built in stage calibration provide plug and play electronics which can be interchanged, minimizing system down times.
- Rapid settling times even with large objective loads. Tested to function for greater than 10 million full range cycles.

Technical Specifications

Parameter	Value	Unit	Tolerance	Note
Material	Stainless Steel			
Closed Loop Range	400	µm	min	
Resolution	0.7	nm	typical	150g load
Linearity	0.02	%	max	
Repeatability	1.6	nm	typical	Slow PID, 200µm step, 1SD
Max Objective Load	1000	g	max	Please specify when ordering objective to be used
Rotation Errors	5 pitch & 30 yaw	µrad	typical	
5% Settle 0.5µm Step 150g/250g/500g load	7 / 8 / 20	ms	typical	
0.5% (500nm) Settle 100µm Step 150g/250g/500g Load	40 / 50 / 60	ms	typical	
Cable Length	2	m	+/- 20%	
Objective Clearance	40	mm	+/- .2	
Optical Path Length Extension	12.5	mm	+/- .2	11.5mm with M32

Suggested Controller:

- The NPC-D-6110 is a powerful digital controller which drives the positioner at fastest speeds possible.
- Optimized acceleration/deceleration to improve constant-velocity accuracy and settle time by reducing overshooting and ringing.
- Fastest recovery time between Z stacks providing enhanced time resolution with a 20µsec update rate.
- Selectable tuning presets are optimized for step settle and positioning performance for different objective masses.



Interfacing:

- Analog command and position output (0-10V) for compatibility with existing systems.
- Digital commands over USB or optional RS-232 for maximum accuracy with a DLL interface for customer software. In-position digital outputs can be used to control camera imaging providing rapid Z stacking.
- Digital quadrature or step-and-direction commands allowing high-speed control with a standard 2-wire motion controller interface, without the need for expensive high-precision ADCs/DACs.
- Playback of custom-programmed waveforms such as constant-velocity profiles. Separate digital trigger outputs can be activated at custom-defined points to control external equipment such as camera imaging.
- System configuration over USB or RS-232. Compatible with Queensgate Nanobench, Micro-Manager or customer software using DLL interface provided. May be connected to Prior ProScan™III for integrated fine-Z control.

Ordering Information

Part Number	Description
QGOP-400-UP-V1	Objective Scanning Piezo Stage for upright microscopes using objective lenses 0-500g
QGOP-400-INV-V1	Objective Scanning Piezo Stage for inverted microscopes using objective lenses 0-500g

Notes:

- Higher load versions for objective lenses 500-1000g are also available.
- Specifications valid +/- 3°C of 21.5°C



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