

PZ 250

z-axis piezo stage for microscopes

Concept:

The piezo translation stage series PZ 250 SG are designed for sub-nm precise positioning and scanning movement of probes under a microscope. The footprint of these stages is made for integration into standard microscope stages, e.g. Nikon, Zeiss. With a travel range of up to 350µm in z-axis, the system reaches a superior positioning resolution. The PZ 250 SG series fulfills the highest demand in accuracy and acceleration for scanning application in combination with an integrated closed loop system.

Specials:

The PZ 250 SG series is equipped with a high resolution feedback sensor. The position is permanently controlled during movement. The piezo electric actuator based PZ 250 SG z-axis elevator stage achieves outstanding parameters for positioning accuracy and repeatability also while loaded with a mass.

Interfaces:

The elements of the series PZ 250 SG are made for integration into standard microscope stands. They are available with different footprints according to the used type of microscope.

Components can be mounted on the top plate by threaded holes and can be accurately affixed. This is recommending especially for high speed scanning application with high load masses.

Recommended piezo controller: 30DV50 (digital servo controller part.: E-754-300)



image: PZ 250 SG (part: S-627-31D)

Product highlights:



- accurate parallel z-axis motion
- up to 350µm motion range
- without mechanical play
- easily integration into microscopes because of varying footprints
- threaded holes for easy mounting of probes and components
- high dynamic range

Applications:

- 3D measurement of topology and roughness
- surface inspection
- confocal microscopy
- metrology and semiconductor

PZ 250

Technical data

linear positioning stage	unit	PZ 250 SG	PZ 250 SG
designed for microscope stages****:		NIKON LV Series	Märzhäuser Scan 100
			
		part no.: S-627-31D	part. no.: S-627-41D
stage footprint size (LxWxH)****	mm	122 x 88 x 5	160 x 116 x 3
axes	-		Z
motion open(±10%)* / closed loop	µm		350 / 250
capacitance (±20%)**	µF		14.4
resolution ***	nm		0.7
feed back sensor	-		strain gage
typ. repeatability	nm		±2nm
typ. non-linearity	%		0.04%
typ. resonant frequency (unloaded)	Hz		320
with 100g load	Hz		200
with 300g load(max. recommended load)	Hz		150
stiffness	N/µm		0.3
voltage range	V		-20...130V
connector	-		D-Sub15
cable length	m		2
operating temperature	°C		+5°C ... +35°C
material	-		Aluminum/Stainless Steel
stage outside dimensions (L x W xH)	mm	132 x 98 x 40	170 x126 x 38

* typical value measured with 30DV50 amplifier

** typical value for small electrical field strength

*** the resolution is only limited by the noise of the power amplifier and metrology.

**** the footprint is made for the standard size of these microscope stages. Other footprints available on request.

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