

PicoCube XY(Z) Piezo Scanner

Picometer Precision, High Bandwidth, for Scanning Probe Microscopy



P-313

- Highly linear scanner for AFM / SPM
- Up to 20 picometers resolution, hysteresis <1 nm
- Highest bandwidth due to closed-loop drive concept
- Highest-resolution manipulation tool for biotechnology/nanotechnology
- Resonant frequency 4.0 kHz (X, Y), 11 kHz (Z)
- Travel range 1 μm \times 1 μm \times 0.6 μm

Fields of application

- Scanning probe microscopy
- Atomic force microscopy
- Scanning and screening

High guiding accuracy due to zero-play flexure guides

Flexure guides are free of maintenance, friction, and wear, and do not require lubrication. Their stiffness allows high load capacity and they are insensitive to shock and vibration. They are 100 % vacuum compatible and work in a wide temperature range.

High dynamics multi-axis operation due to parallel kinematics

In a parallel-kinematic multi-axis system, all actuators act on a common platform. The minimum mass inertia and the identical design of all axes allow fast, dynamic, and nevertheless precision motion.

Specifications

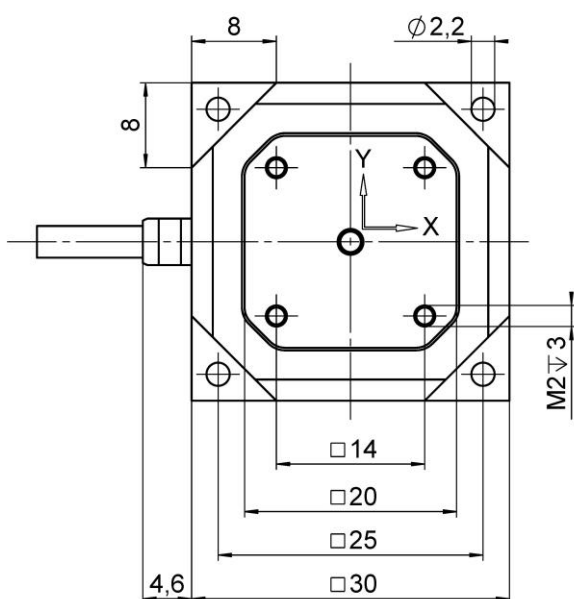
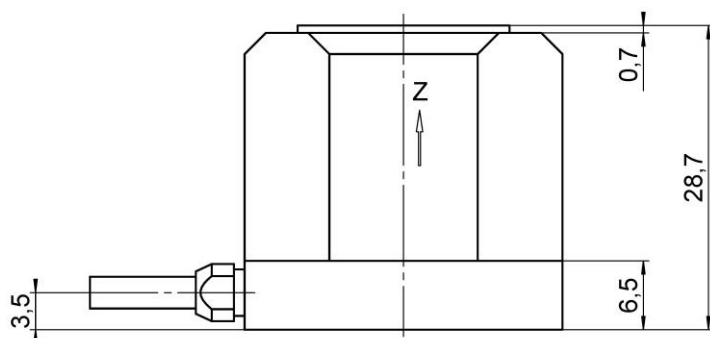
	P-313 PicoCube XY(Z) piezo scanner	Unit
Motion and positioning		
Active axes	X, Y, Z	
Travel range X,Y (± 250 V)	1	μm
Travel range Z (± 250 V)	0.6	μm
Resolution in X, Y	0.02	nm
Resolution in Z	0.14	nm
Mechanical properties		
Resonant frequency in X, Y	4	kHz
Resonant frequency in Z	11	kHz
Push/pull force capacity in motion direction	± 10	N
Load capacity	± 10	N
Miscellaneous		
Operating temperature range	5 to 40	$^{\circ}\text{C}$
Mass	80	g
Cable length	1.5	m
Voltage connection	Sub-D 24W7 (m)	
Recommended electronics	E-536	

The resolution of the system is limited only by the noise of the amplifier and the measuring technology because PI piezo nan positioning systems are free of friction.

All specifications based on room temperature ($22\text{ }^{\circ}\text{C} \pm 3\text{ }^{\circ}\text{C}$).

Ask about customized versions.

Drawings / Images



P-313, dimensions in mm

Ordering Information

P-313.30L

Highly linear PicoCube XYZ nanopositioner and scanner, $1\ \mu\text{m} \times 1\ \mu\text{m} \times 0.6\ \mu\text{m}$, open loop, LEMO connector(s)

P-313.30D

Highly linear PicoCube XYZ nanopositioner and scanner, $1\ \mu\text{m} \times 1\ \mu\text{m} \times 0.6\ \mu\text{m}$, open loop, Sub-D connector