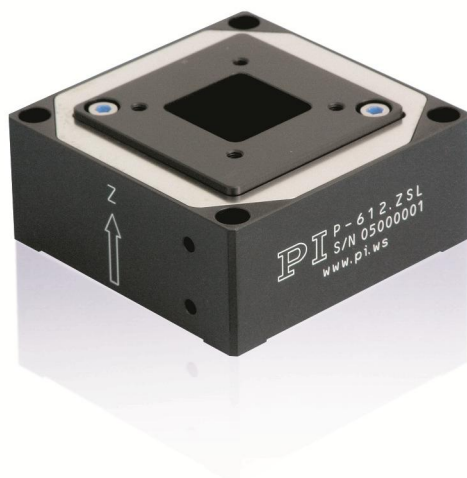


Piezo Z Stage

Compact Nanopositioner with Aperture



P-612.Z

- Travel range 100 μm
- Resolution to 0.2 nm
- Linearity error 0.2 %
- Compact: Surface 60 mm \times 60 mm
- Particularly inexpensive systems (mechanics and controller)
- Zero-play, high-precision flexure guide system
- Outstanding lifetime due to PICMA® piezo actuators

Application fields

- Interferometry
- Microscopy
- Nanopositioning
- Biotechnology
- Test procedures and quality assurance
- Semiconductor technology

Outstanding lifetime thanks to PICMA® piezo actuators

The PICMA® piezo actuators are all-ceramic insulated. This protects them against humidity and failure resulting from an increase in leakage current. PICMA® actuators offer an up to ten times longer lifetime than conventional polymer-insulated actuators. 100 billion cycles without a single failure are proven.

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 work in a wide temperature range.

Motion	Unit	Tolerance	P-612.ZSL
Active axes			Z
Travel range in Z	μm		100
Travel range in Z, open loop, at -20 to 120 V	μm	+20 / -0 %	110
Linearity error in Z	%	Typ.	0.2
Flatness (Linear crosstalk in X with motion in Z)	nm	Typ.	± 20
Straightness (Linear crosstalk in Y with motion in Z)	nm	Typ.	± 20
Yaw (Rotational crosstalk in θ_X with motion in Z)	μrad	Typ.	± 10
Pitch (Rotational crosstalk in θ_Y with motion in Z)	μrad	Typ.	± 10

Positioning	Unit	Tolerance	P-612.ZSL
Unidirectional repeatability in Z	nm	Typ.	±4
Resolution in Z, open loop	nm	Typ.	0.2
Integrated sensor			SGS, indirect position measuring
System resolution in Z	nm		1.5

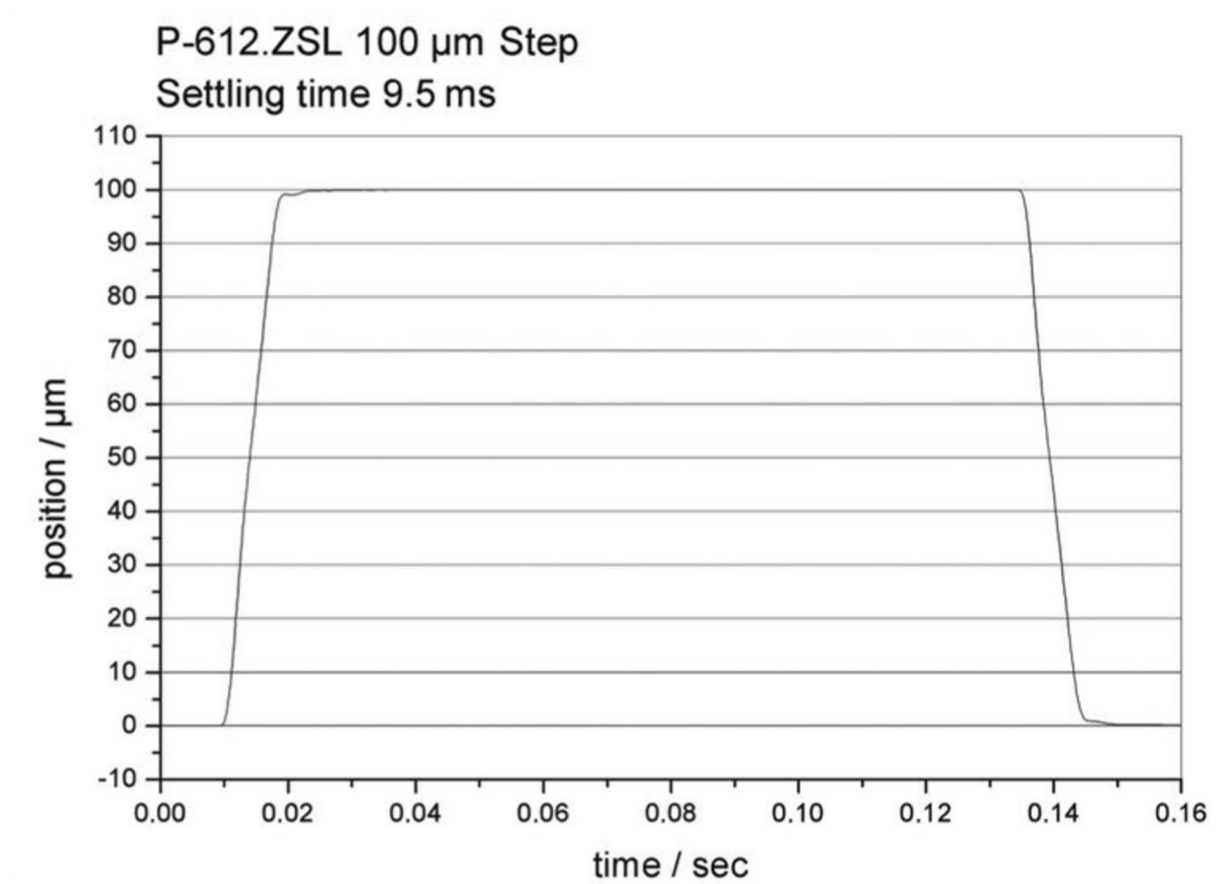
Drive Properties	Unit	Tolerance	P-612.ZSL
Drive type			Piezo actuator/PICMA®
Electrical capacitance in Z	µF	±20%	3

Mechanical Properties	Unit	Tolerance	P-612.ZSL
Stiffness in Z	N/µm	±20%	0.63
Resonant frequency in Z, unloaded	Hz	±20%	490
Resonant frequency in Z, under load with 30 g	Hz	±20%	420
Permissible push force in Z	N	Max.	15
Permissible pull force in Z	N	Max.	10
Guide			Flexure guide/Flexure guide with lever amplification
Overall mass	g	±5%	280
Material			Aluminum

Miscellaneous	Unit	Tolerance	P-612.ZSL
Operating temperature range	°C		-20 to 80
Connector			LEMO FFS.00.250.CTCE24
Sensor connector			LEMO FFA.05.304.CLAC32
Cable length	m	±10 mm	1.5
Recommended controllers / drivers			E-503, E-505, E-610, E-621, E-625, E-665

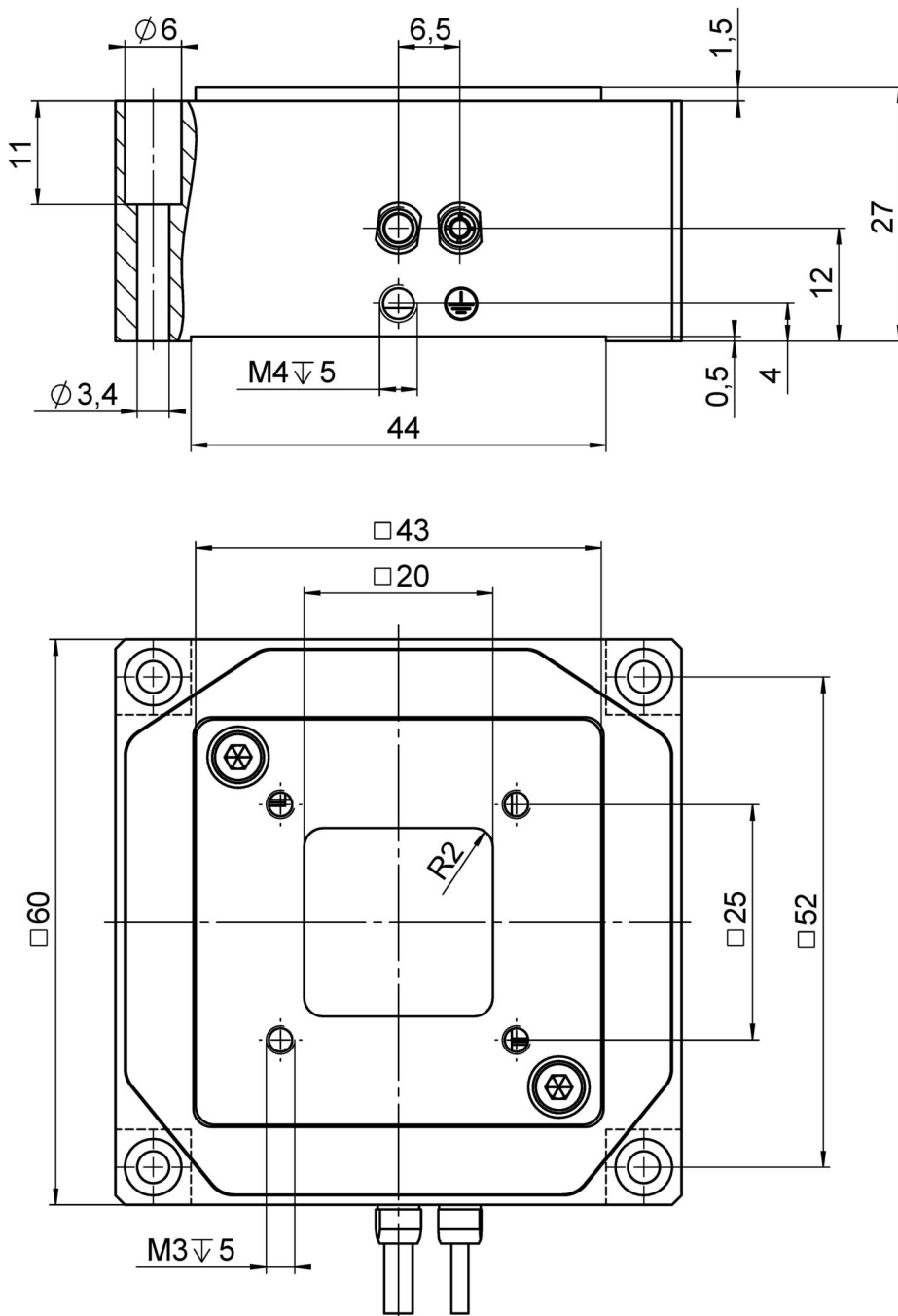
The resolution of the system is limited only by the noise of the amplifier and the measuring technology because PI piezo nanopositioning systems are free of friction.

Drawings / Images



With active control, the settling time is less than 10 ms over the entire travel range.

Drawings / Images



P-612.ZSL, dimensions in mm. Note that a comma is used in the drawings instead of a decimal point.

Order Information

P-612.ZSL

Piezo Z stage; 100 µm travel range; SGS, indirect position measuring; LEMO connectors; 1.5 m cable length