

## Linear Piezo Positioner

### Inexpensive, Compact Linear Stage



### P-611.1

- Compact design: Surface 44 mm × 44 mm
- Travel range 120 μm
- Resolution to 0.2 nm
- Particularly inexpensive systems (mechanics and controller)
- Outstanding lifetime thanks to PICMA® piezo actuators
- Also available as Z stage, and as XY, XZ, and XYZ version

#### Application fields

- Microscopy
- Nanopositioning
- Biotechnology
- Test applications
- Semiconductor technology
- Photonics
- Fiber positioning

#### Outstanding lifetime due 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.

Motion	Unit	Tolerance	P-611.10	P-611.1S
Active axes			X	X
Travel range in X	μm			100
Travel range in X, open loop, at -20 to 120 V	μm	+20 / -0 %	120	120
Linearity error in X	%	Typ.		0.1
Flatness (Linear crosstalk in Z with motion in X)	nm	Typ.	10	10
Pitch (Rotational crosstalk in θY with motion in X)	μrad	Typ.	±5	±5
Yaw (Rotational crosstalk in θZ with motion in X)	μrad	Typ.	±20	±20

Positioning	Unit	Tolerance	P-611.10	P-611.1S
Unidirectional repeatability in X	nm	Typ.	±10	±10
Resolution in X, open loop	nm	Typ.	0.2	0.2
Integrated sensor				SGS, indirect position measuring
System resolution in X	nm			2

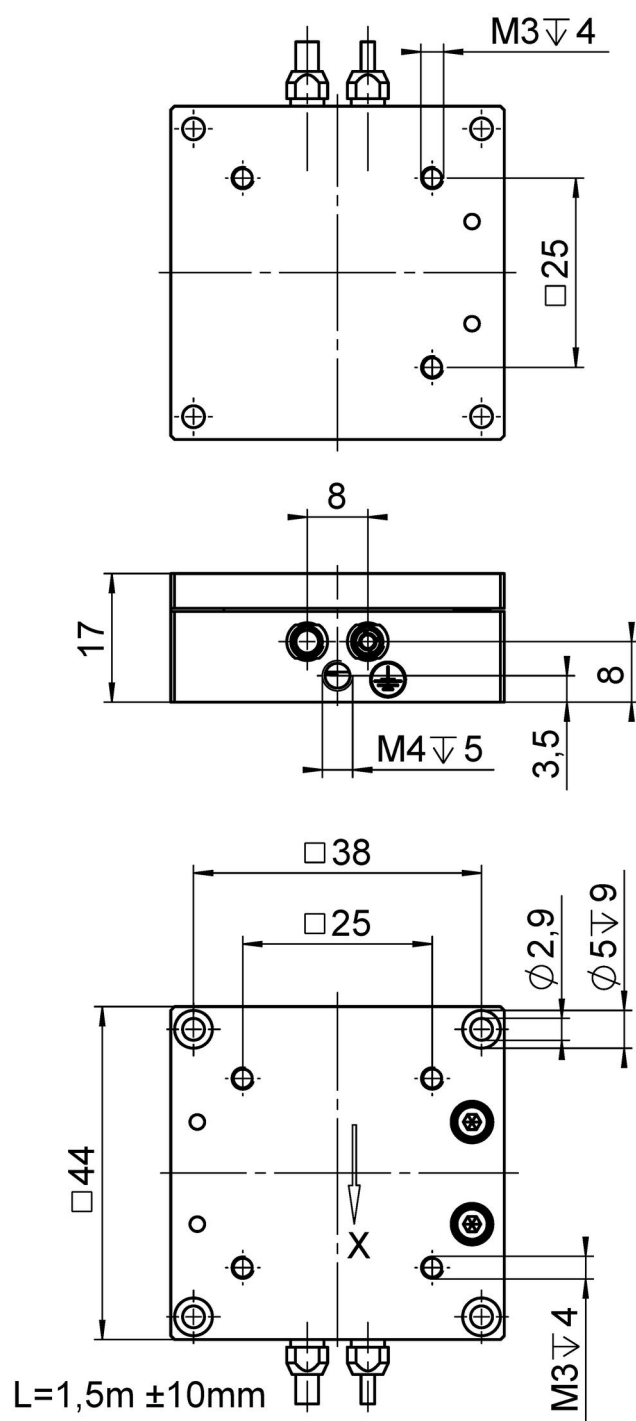
Drive Properties	Unit	Tolerance	P-611.10	P-611.1S
Drive type			Piezo actuator/PICMA®	Piezo actuator/PICMA®
Electrical capacitance in X	µF	±20%	1.5	1.5

Mechanical Properties	Unit	Tolerance	P-611.10	P-611.1S
Stiffness in X	N/µm	±20%	0.2	0.2
Resonant frequency in X, unloaded	Hz	±20%	400	400
Resonant frequency in X, under load with 30 g	Hz	±20%	300	300
Resonant frequency in X, under load with 100 g	Hz	±20%	195	195
Permissible push force in X	N	Max.	15	15
Permissible push force in Z	N	Max.	15	15
Permissible pull force in X	N	Max.	10	10
Guide			Flexure guide/Flexure guide with lever amplification	Flexure guide/Flexure guide with lever amplification
Overall mass	g	±5%	135	135
Material			Aluminum, steel	Aluminum, steel

Miscellaneous	Unit	Tolerance	P-611.10	P-611.1S
Operating temperature range	°C		-20 to 80	-20 to 80
Connector			LEMO FFS.00.250.CTCE24	LEMO FFS.00.250.CTCE24
Sensor connector				LEMO FFA.0S.304.CLAC32
Cable length	m	±10 mm	1.5	1.5
Recommended controllers / drivers			E-503, E-505, E-610, E-621, E-625, E-665, E-836	E-503, E-505, E-610, E-621, E-625, E-665, E-836

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



P-611.15, dimensions in mm. Note that a comma is used in the drawings instead of a decimal point.

## Order Information

### **P-611.10**

Linear piezo positioner; 120  $\mu\text{m}$  travel range (open loop); LEMO connector; 1.5 m cable length

### **P-611.1S**

Linear piezo positioner; 100  $\mu\text{m}$  travel range; SGS, indirect position measuring; LEMO connectors; 1.5 m cable length