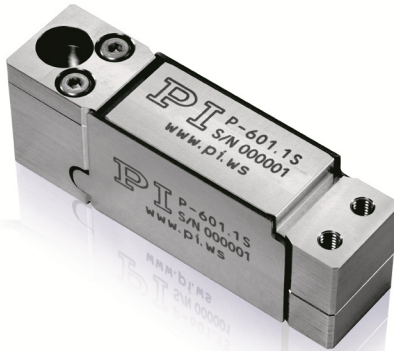


# PiezoMove Linear Actuator with Guides

With Optional Position Sensor



## P-601

- Flexure guides for linear motion with minimum tip and tilt
- Travel ranges to 400  $\mu\text{m}$
- Resolution to 0.2 nm
- Available with integrated position sensors
- Outstanding lifetime due to PICMA<sup>®</sup> piezo actuators
- Ideal for OEM applications in optics, medical technology, biotechnology, and microfluidics
- Customized versions with longer travel range, shorter response time or nonmagnetic

### Fields of application

- Nanopositioning
- High-speed switching
- Patch clamp
- Microdispensing
- Adaptive systems technology / automation
- Photonics / integrated optics
- Biotechnology

### Outstanding lifetime thanks to PICMA<sup>®</sup> piezo actuators

The patented PICMA<sup>®</sup> piezo actuators are all-ceramic insulated. This protects them against humidity and failure resulting from an increase in leakage current. PICMA<sup>®</sup> 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 are 100 % vacuum compatible and work in a wide temperature range.

## Specifications

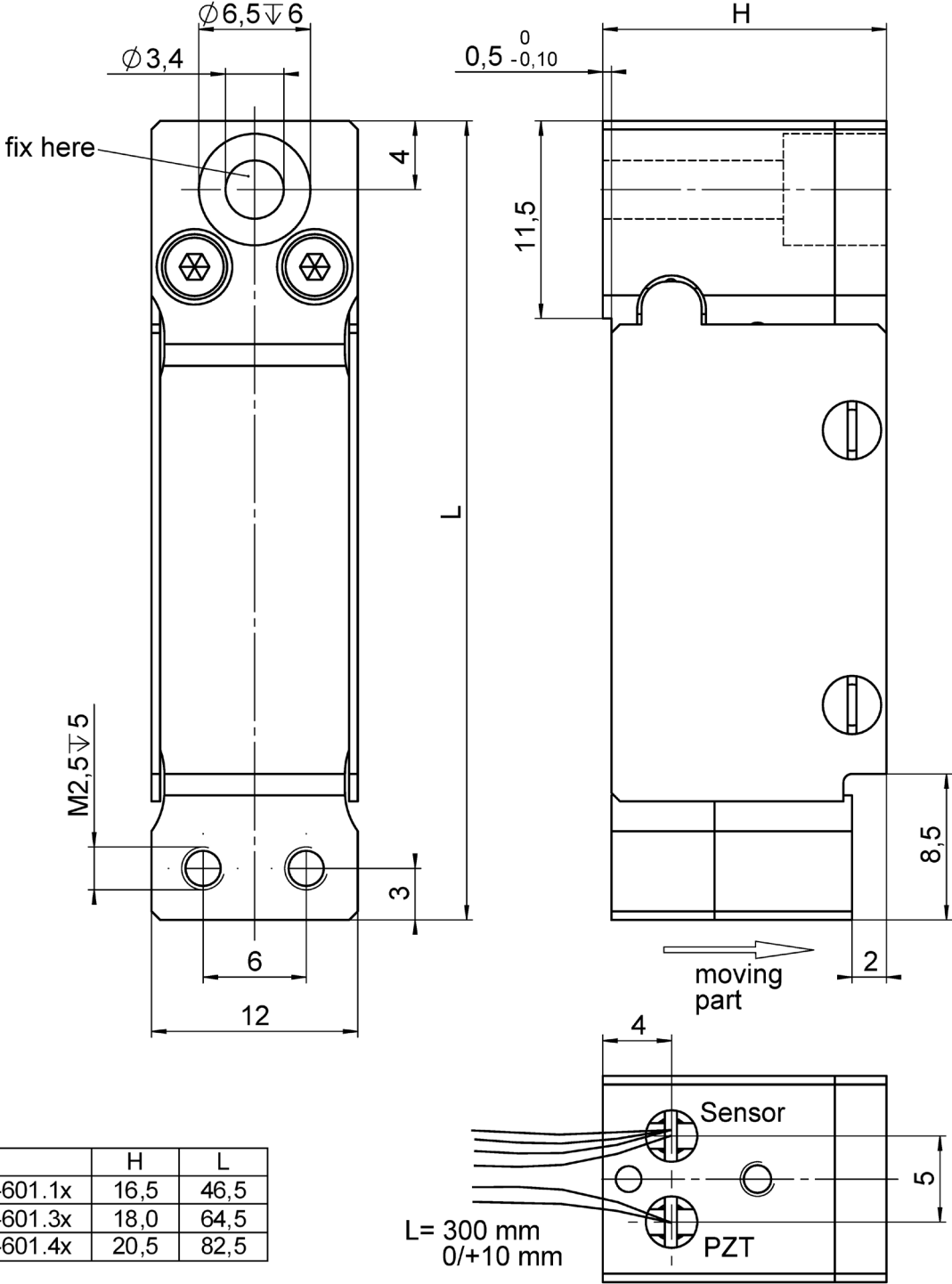
	P-601.1S P-601.1SL	P-601.3S P-601.3SL	P-601.4S P-601.4SL	P-601.x0 P-601.x0L Open-loop versions	Unit	Tolerance
Active axes	Z	Z	Z	Z		
<b>Motion and positioning</b>						
Integrated sensor	SGS	SGS	SGS	–		
Travel range at -20 to 120 V, open loop	100	250	400	as P-601.xS	µm	+20 % / -0 %
Travel range, closed loop	100	250	400	–	µm	calibrated
Resolution, open loop	0.2	0.3	0.4	as P-601.xS	nm	typ.
Resolution, closed loop	2	6	12	–	nm	typ.
Linearity error, closed loop	0.1	0.3	0.3	–	%	typ.
Repeatability	8	10	30	–	nm	typ.
<b>Mechanical properties</b>						
Stiffness in motion direction	0.8	0.38	0.28	as P-601.xS	N/µm	±20 %
Resonant frequency, no load	750	440	350	as P-601.xS	Hz	±20 %
Resonant frequency, under load, 30 g	620	350	290	as P-601.xS	Hz	±20 %
Push/pull force capacity in motion direction	30 / 10	20 / 10	15 / 10	as P-601.xS	N	max.
Lateral force	30	30	30	as P-601.xS	N	max.
<b>Drive properties</b>						
Ceramic type	PICMA® P-885	PICMA® P-885	PICMA® P-885	as P-601.xS		
Electrical capacitance	1.5	3.1	4.6	as P-601.xS	µF	±20 %
<b>Miscellaneous</b>						
Operating temperature range	-20 to 80	-20 to 80	-20 to 80	-20 to 80	°C	
Material	Stainless steel	Stainless steel	Stainless steel	Stainless steel		
Mass (without connector)	0.05	0.08	0.11	as P-601.xS	kg	±5 %
Cable length	S versions: 0.3 m SL versions: 1.5 m	S versions: 0.3 m SL versions: 1.5 m	S versions: 0.3 m SL versions: 1.5 m	0.3 m		±10 mm
Sensor/voltage connection	S versions: Wire leads SL versions: LEMO	S versions: Wire leads SL versions: LEMO	S versions: Wire leads SL versions: LEMO	x0 versions: Bare stranded wires x0L versions: LEMO		
Recommended electronics	E-610, E-625, E-831	E-610, E-625, E-831	E-610, E-625, E-831	E-610, E-625, E-831		

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

All specifications based on room temperature (22 °C ±3 °C).

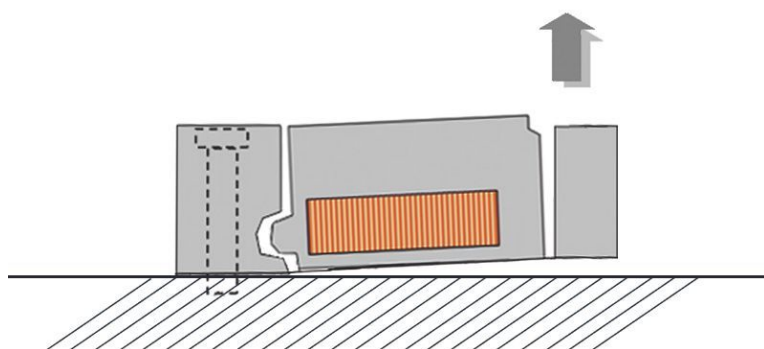
Ask about customized versions.

## Drawings / Images



	H	L
P-601.1x	16,5	46,5
P-601.3x	18,0	64,5
P-601.4x	20,5	82,5

P-601, dimensions in mm



*Direction of motion of the P-601. The flexure guides prevent tilt at the output.*

## Ordering Information

### **P-601.10**

PiezoMove OEM lever-amplified actuator, 100  $\mu\text{m}$ , open loop

### **P-601.10L**

PiezoMove OEM lever-amplified actuator, 100  $\mu\text{m}$ , open loop, LEMO connector(s)

### **P-601.1S**

PiezoMove OEM lever-amplified actuator, 100  $\mu\text{m}$ , strain gauge sensor

### **P-601.1SL**

PiezoMove OEM lever-amplified actuator, 100  $\mu\text{m}$ , strain gauge sensor, LEMO connector(s)

### **P-601.30**

PiezoMove OEM lever-amplified actuator, 250  $\mu\text{m}$ , open loop

### **P-601.30L**

PiezoMove OEM lever-amplified actuator, 250  $\mu\text{m}$ , open loop, LEMO connector(s)

### **P-601.3S**

PiezoMove OEM lever-amplified actuator, 250  $\mu\text{m}$ , strain gauge sensor

### **P-601.3SL**

PiezoMove OEM lever-amplified actuator, 250  $\mu\text{m}$ , strain gauge sensor, LEMO connector(s)

### **P-601.40**

PiezoMove OEM lever-amplified actuator, 400  $\mu\text{m}$ , open loop

### **P-601.40L**

PiezoMove OEM lever-amplified actuator, 400  $\mu\text{m}$ , open loop, LEMO connector(s)

### **P-601.4S**

PiezoMove OEM lever-amplified actuator, 400  $\mu\text{m}$ , strain gauge sensor

### **P-601.4SL**

PiezoMove OEM lever-amplified actuator, 400  $\mu\text{m}$ , strain gauge sensor, LEMO connector(s)