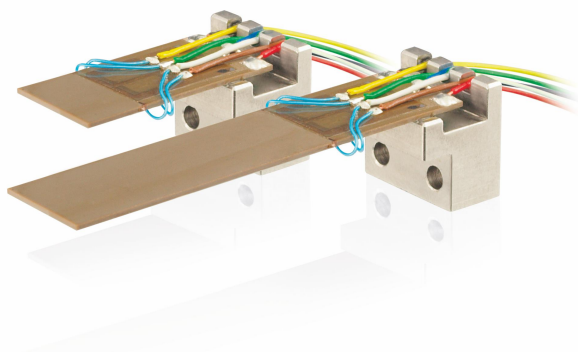


PICMA® Multilayer Bending Actuators

With Position Sensor



P-871

- Position sensor for high accuracy
- Nanometer resolution
- Displacement to 2 mm
- All-ceramic insulated for extended lifetime
- Ideal for scanning applications
- Vacuum-compatible versions
- Low operating voltage
- Mounting hardware included
- Special OEM and benchtop amplifiers available

Application fields

- Wire bonders
- Pneumatic valves
- Fiber optic positioning / switches
- Laser beam steering
- Micromanipulation
- Micropositioning
- Nanotechnology

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.

Motion	Unit	Tolerance	P-871.112	P-871.122	P-871.127	P-871.128	P-871.140
Active axes			Z	Z	Z	Z	Z
Travel range in Z	µm		160	400	720	720	1600
Linearity error in Z	%	Typ.	0.5	0.5	0.5	0.5	0.5

Positioning			P-871.112	P-871.122	P-871.127	P-871.128	P-871.140
Integrated sensor			SGS, direct position measuring	SGS, direct position measuring	SGS, direct position measuring	SGS, direct position measuring	SGS, direct position measuring

Drive Properties	Unit	Tolerance	P-871.112	P-871.122	P-871.127	P-871.128	P-871.140
Actuator type			Benders	Benders	Benders	Benders	Benders
Drive type			Piezo actuator/PIC-MA® Bender	Piezo actuator/PIC-MA® Bender	Piezo actuator/PIC-MA® Bender	Piezo actuator/PIC-MA® Bender	Piezo actuator/PIC-MA® Bender
Operating voltage	V		0 to 60 (±30)	0 to 60 (±30)	0 to 60 (±30)	0 to 60 (±30)	0 to 60 (±30)
Maximum power consumption	W		0,5	1,1	1,5	0,5	1,8
Electrical capacitance in Z	µF	±20%	2.2	5	6.8	2.4	8.2
Maximum operating frequency during continuous operation	Hz		50	50	50	50	50

Mechanical Properties	Unit	Tolerance	P-871.112	P-871.122	P-871.127	P-871.128	P-871.140
Stiffness in Z	N/ μ m		0.02	0.01	0.003	0.002	0.0007
Resonant frequency in Z, unloaded	Hz	$\pm 20\%$	1800	600	420	360	160
Resonant frequency in Z, under load with 6.5 g	Hz	$\pm 20\%$	480	220	145	100	60
Blocking force in Z	N	$\pm 20\%$	± 2.1	± 1.25	± 1.1	± 0.55	± 0.5

Miscellaneous	Unit	Tolerance	P-871.112	P-871.122	P-871.127	P-871.128	P-871.140
Operating temperature range	$^{\circ}\text{C}$		-20 to 105	-20 to 85	-20 to 85	-20 to 105	-20 to 85
Connector			LEMO FGG.0B.307. CLAD52ZN	LEMO FGG.0B.307. CLAD52ZN	LEMO FGG.0B.307. CLAD52ZN	LEMO FGG.0B.307. CLAD52ZN	LEMO FGG.0B.307. CLAD52ZN
Cable length	m	+50 / -0 mm	1	1	1	1	1
Recommended controllers / drivers			E-651 • E-614	E-651 • E-614	E-651 • E-614	E-651 • E-614	E-651 • E-614

Electrical capacitance in Z: Measured at 1 V_{pp}, 1 kHz, RT.

Resonant frequency in Z, unloaded: Measured at 1 V_{pp}.

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.

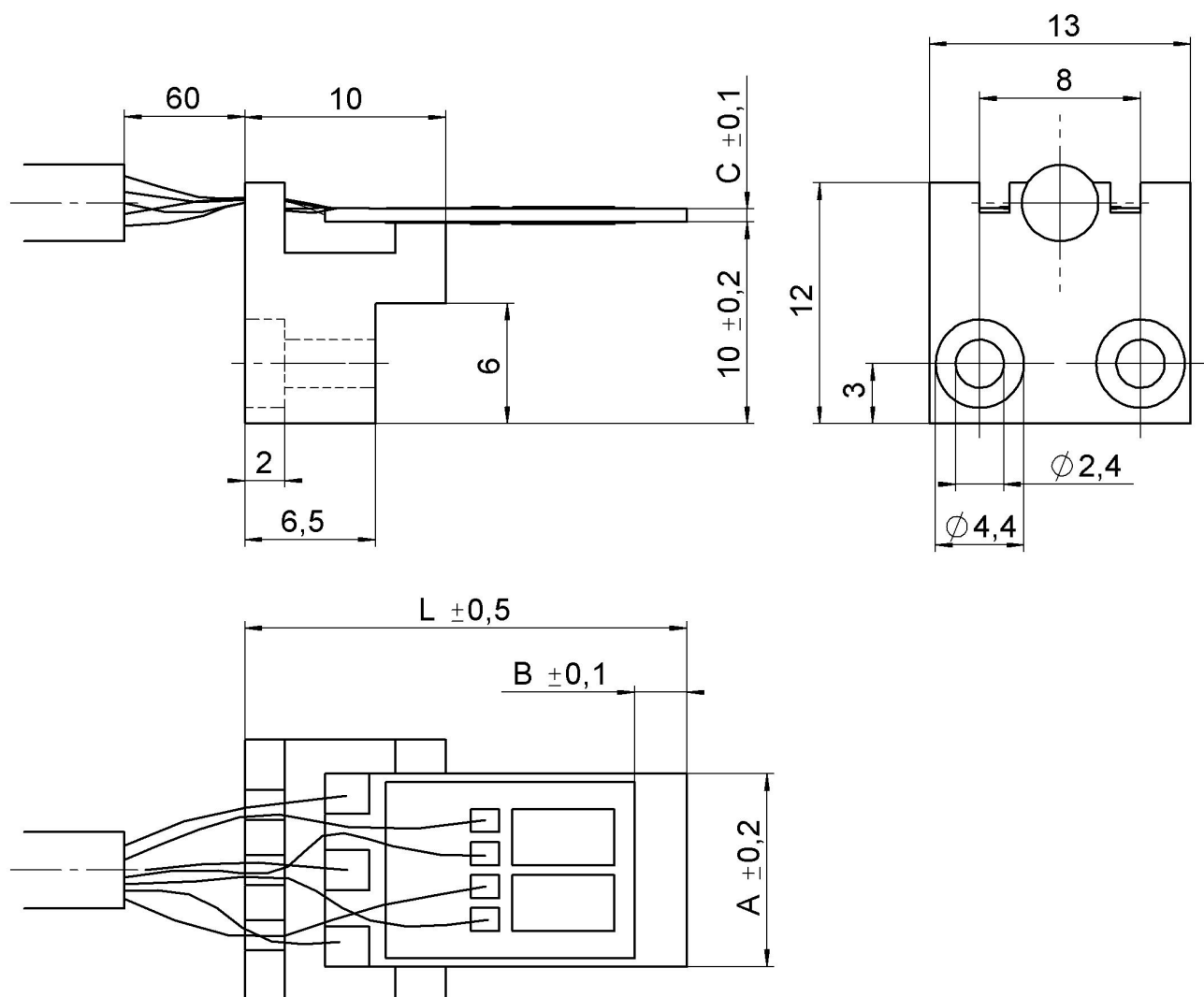
All specifications depend on actual clamping conditions and mechanical load applied.

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

Different specifications on request.

Ask about customized versions.

Drawings / Images



	L	A	B	C
P-871.112	22	9,6	2,6	0,65
P-871.122	29	9,6	9,6	0,65
P-871.127	35	9,6	15,6	0,65
P-871.128	40	6,25	17	0,75
P-871.140	49	11	29,1	0,60

P-871, dimensions in mm. Note that a comma is used in the drawings instead of a decimal point.

Order Information

P-871.112

PICMA® multilayer piezo bending actuator, 160 µm, 9.6 mm width, strain gauge sensor

P-871.122

PICMA® multilayer piezo bending actuator, 400 µm, 9.6 mm width, strain gauge sensor

P-871.127

PICMA® multilayer piezo bending actuator, 720 µm, 9.6 mm width, strain gauge sensor

P-871.128

PICMA® multilayer piezo bending actuator, 720 µm, 6.3 mm width, strain gauge sensor

P-871.140

PICMA® multilayer piezo bending actuator, 1600 µm, 11 mm width, strain gauge sensor