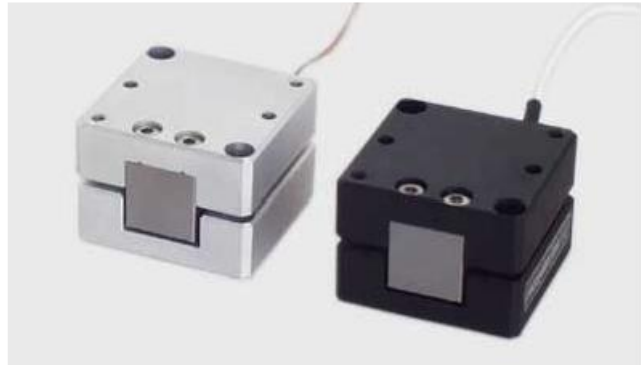


compact 1-axis translation stages

PX 38

- compact piezo-translation stage
- motion range up to 39µm
- solid state hinges without mechanical play
- optional feedback sensor
- easily combined with other piezo systems (especially XY and tilting systems)
- precision pin holes for accurate adjustment



applications:

- fiber positioning, laser optics
- scanning systems
- micro manipulation

fig.: PX 38 V
(vacuum option)

PX 38

Concept

The systems of the series PX are single-axis positioning stages with a motion range up to 38 microns. Due to the nature of the solid state flexure and parallelogram construction, these stages are free of mechanical play. Based on their compact size, they can be easily integrated into customer sized setups. The high performance of the piezo electrical stack type actuator is the basic feature for stage accuracy.

They are ideally suited to nm-precise positioning of optic components such as mirrors and laser diodes, adjustment and mounting in semiconductor technologies and electronics, and applications in measurement technologies and quality assurance as well as microbiology.

Specials

As an option they may come equipped with strain gage to achieve very accurate repeatability and long term position stability. The systems of this series are available in vacuum configuration. Other configurations for cryogenic temperature or non-magnetic applications, are available upon request.

Mounting/Installation

The elements of the series PX are actuators integrated with an inner lever transmission in housing. Since the lever mechanism works in both directions, excessive pressure on the top plate must be avoided. The integrated pre-load allows using the system in a dynamic application. The max pull forces need to be lower than the given values for this stage.

The stage can be mounted on a 25mm pattern by using the bore-holes. Components can be mounted on the top plate by using the 25mm pattern with two threaded diagonal M2 holes. In addition, by using the precise pin holes, the components can be affixed accurately.

technical data:

series PX	unit	PX 38
part no.	-	T-101-00
axes	-	x
motion open loop ($\pm 10\%$)*	μm	39
capacitance ($\pm 20\%$ **)	μF	0.6
resolution*** open loop	nm	0.07
resonant frequency	Hz	760
stiffness	N/ μm	0.8
max. push force	N	30
max. pull force	N	3
voltage range	V	-20...+130
connector voltage	-	LEMO 0S.302
cable length	m	1
material	-	stainless steel; top and bottom plate made of anodized Al
dimensions (l x w x h)	mm	25x25x18
weight	g	40
series PX with integrated measurement system		PX 38 SG
part no.		T-101-01
motion closed loop ($\pm 0,2\%$)*	μm	32
integrated measurement system		strain gage
resolution***closed loop	nm	0.7
typ. repeatability	nm	10
non-linearity	%	0.1
max. push force	N	30
max. pull force	N	3
connector sensor		LEMO 0S.304
cable length	m	1.2
dimensions (l x w x h)	mm	40x40x25
weight	g	77

* typical value measured with NV 40/3 amplifier (closed loop: NV 40/3 CLE amplifier)

** typical value for small electrical field strength

*** The resolution is only limited by the noise of the power amplifier and metrology.

additional variation of the series PX 38

Variation	Description	Specials	Part. No.
PX 38 SG D igital	Version for digital controller series d-Drive and the analogue controller of the series NV 40/3CLE in combination with additional functionalities: Interchange ability, ASI, ASC	Connector Sub-D 15	T-101-01 D
PX 38 SG E xtern	Version with sensor pre-amplifier for the use of additional functionalities: Interchange ability, ASI	Connector sensor ODU 4pin	T-101-01 E
PX 38 Vacuum	Compatible for vacuum application down to 10^{-7} hPa	60cm cable length vacuum side; 2m cable length air side	T-101-02

Please pay attention to our “notes for mounting”, which are available as download on our homepage.



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PX 100

compact 1-axis translation stage

Concept:

The systems of the series PX 100 are ideally suited for nm-precise positioning of optic components such as mirrors and laser diodes, adjustment and mounting in semiconductor technologies and electronics, and applications in measurement technologies and quality assurance as well as microbiology.

The series PX consist of piezo electrical actuator in stage design with a solid top and bottom plate for easily integration in optical setups. The monolithic flexure hinges design offers high precision motion range, high stiffness and in due of this excellent dynamical performance for extremely fast and accurate positioning tasks

Specials:

The systems of this series are available in vacuum and cryogenic temperature configurations. As an option they may come equipped with strain gage or capacitive position sensors, depending on the system configuration, to achieve very accurate repeatability in the low nanometer range.

Interfaces:

The elements of the series PX are actuators integrated with an inner lever transmission in housing. Since the lever mechanism works in both directions, pulling forces between bottom and top plate need to be avoided, as they could damage the stage. The stage is fixed to a base plate.

Components can be mounted on the top plate by two threaded diagonal holes and can be accurately affixed using the precise pin holes.



image: PX 100

Product highlights:

- accurate parallel motion
- up to 100µm motion range
- without mechanical play
- easily combined with other piezo electrical systems
- precision pin holes for accurate adjustment
- high dynamic range

Applications:

- fiber positioning
- beam alignment
- semiconductor
- micro manipulation

PX 100

Technical data:

linear positioning stage	unit	PX 100	PX 100 SG
part no.		T-104-00	T-104-01
axis	-	X	X
motion in open(±10%)/closed loop (±0.2%)*	µm	100/ -	100/80
capacitance (±20%)**	µF	1.8	1.8
resolution (open/closed loop)***	nm	0.2/ -	0.2/2
integrated measurement system	-	-	strain gage
typ. repeatability	nm	-	±4
typ. non-linearity	%	-	0.02
resonant frequency (unloaded)	Hz	790	790
max. push/pull forces	N	150/15	150/15
stiffness	N/µm	0.35	0.35
voltage range	V	-20...130V	-20...130V
connector (additional variation please see table below) ****	-	LEMO 0S.302	LEMO 0S.302/ LEMO 0S.304
cable length	m	1	1.2
temperature range	°C	-20°C ... +80°C	-20°C ... +80°C
material	-	aluminum/stainless steel	
dimensions (LxWxH)	mm	40x40x20	40x40x20
weight	g	85	90

* typical value measured with NV 40/3 amplifier (closed loop: NV 40/3 CLE amplifier)

** typical value for small electrical field strength

*** the resolution is only limited by the noise of the power amplifier and metrology

**** additional connector configurations

Product name	Description	Specials	Part. No Suffix.
PX 100 SG Digital	Version for digital controller series d-Drive and 30DV50 in combination with additional functionalities: Interchangeability, ASI, ASC	Connector Sub-D 15	T-104-01D
PX 100 SG Extern	Version with sensor pre-amplifier for the use with „CLE” amplifier units and with the additional functionalities: Interchangeability, ASI	Connector Sensor: ODU 4pin	T-104-01E

Rights reserved to change specifications as progress occurs without notice!



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PX_100_ds_Rev06_2017_10_04

PX 500 and PX 1500

1-axis –Large Travel Range Translation Stage

Concept:

The piezo positioners from the PX 500 and PX 1500 series are made for highly precise positioning over a long range of motion. The positioners are ideally suited for micro positioning of optic components, such as mirrors and laser diodes, or for opening and closing micro fluid valves. They have been also used several times as a beam shutter with past success.

The PX 500 piezo flexure stage is especially suited for system integration due to its small dimension. The PX 1500 piezo flexure stage is equipped with a 1500 micron travel range that allows high precision movement of small parts and optical components across a motion range that is normally only attainable with motorized stages.

Specials:

The lever transmission principle is based on solid state hinges with integrated preload. Additionally, it is possible to achieve highly dynamic movement that is free of mechanical play.

The systems of this series are available in vacuum and cryogenic temperature configurations.

Interfaces:

The piezo positioning elements of the PX 500 and PX 1500 series are actuators integrated with an inner lever transmission. Since the lever mechanism works in both directions, pulling forces need to be avoided, as they could damage the stage.

The element can be mounted to a fixture using one of the holes (diameter 2.2 mm); the remaining hole then moves in relation to the one being used.



Image: PX 1500

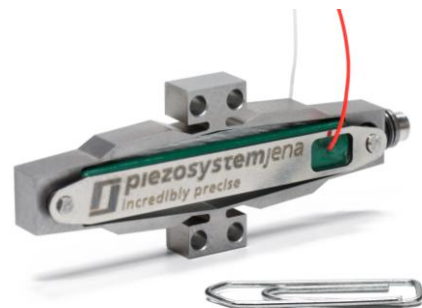


Image: PX 500

Product highlights:

- long range of motion, up to 1500 microns
- vacuum and cryogenic configurations available
- easy system integration
- control signal within -20 ...130 V
- high dynamic range

Applications:

- beam shutter
- optic alignment
- valve control system in micro fluid technology
- micro manipulation

PX 500 and PX 1500

Technical data:

linear positioning stage	unit	PX 500	PX 1500
part no.		S-605-89	S-622-00
axes	-	X	X
motion ($\pm 10\%$)*	μm	500	1500
capacitance ($\pm 20\%$)**	μF	3.6	7.2
resolution (open loop)***	nm	1.2	3
integrated measurement system	-	-	-
resonant frequency *	unloaded	Hz	450
	load 12g	Hz	200
max. push forces	N	35	60
max. pull forces	N	3	6
stiffness	N/ μm	0.06	0.04
voltage range	V	-20 ... 130	
connector	-	sloped bare wires	
temperature range	$^{\circ}\text{C}$	-20 ... +80 (-4 $^{\circ}\text{F}$... 176 $^{\circ}\text{F}$)	
material	-	aluminum/stainless steel	
dimensions (LxWxH)	mm	52x20x8 (2"x0.8"x0.3")	87x34x13 (3.4"x1.3"x0.5")
weight	g	14 (0.5 oz)	98 (3.5 oz)

* typical value measured with NV 40/3 amplifier

** typical value for small electrical field strength

*** the resolution is only limited by the noise of the power amplifier and metrology

Specifications subject to change without notice



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PX 500 und PX 1500

Drawing PX 500

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