

PX 200 • PX 300 • PX 400

compact 1-axis translation stage

Concept:

The systems of the series PX 200, PX 300 and PX 400 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 200 up to PX 400 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 400

Product highlights:

- accurate parallel motion
- up to 400µm 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

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linear positioning stage	unit	PX 200	PX 300	PX 400
part no.		T-106-00	T-107-00	T-108-00
axis	-	X	X	X
motion in open($\pm 10\%$)/closed loop ($\pm 0.2\%$)*	μm	200	300	400
capacitance ($\pm 20\%$)**	μF	1.8	2.5	5.2
resolution (open/closed loop)***	nm	0.4	0.6	0.8
resonant frequency (unloaded)	Hz	177	177	200
max. push/pull forces	N	340/34	720/72	300/30
stiffness	N/ μm	0.09	0.09	0.09
voltage range	V	-20...130V		
connector (additional variation please see table below) ****	-	LEMO 0S.302 / Sub-D 15 (only with part number suffix "D")		
cable length	m	1	1	1
min. bend radius of cable	mm	15	15	15
temperature range	$^{\circ}\text{C}$	-20 $^{\circ}\text{C}$... +80 $^{\circ}\text{C}$	-20 $^{\circ}\text{C}$... +80 $^{\circ}\text{C}$	-20 $^{\circ}\text{C}$... +80 $^{\circ}\text{C}$
material	-	aluminum/stainless steel		
dimensions (LxWxH)	mm	52x48x20		
weight	g	175	175	175

linear positioning stage	unit	PX 200 SG	PX 300 SG	PX 400 SG
part no.		T-106-01	T-107-01	T-108-01
integrated measurement system	-	strain gage	strain gage	strain gage
motion in closed loop ($\pm 0.2\%$)*	μm	160	240	320
resolution (open/closed loop)***	nm	4	6	8
typ. repeatability	nm	± 14	± 31	± 5
typ. non-linearity	%	0.06	0.2	0.09
connector voltage	-	(please see table above)		
connector feedback sensor	-	LEMO.0S.304 OR ODU 4 pin (part no. suffix „E“) OR included in connector Sub-D15 (part no. with suffix „D“)		
weight / cable length	g / m	180 / 1.2	180 / 1.2	180 / 1.2
dimensions (LxWxH)	mm	52x48x20	52x48x20	52x48x20

linear positioning stage	unit	PX 200 CAP	PX 300 CAP	PX 400 CAP
part no.		T-106-06	T-107-06	T-108-06
integrated measurement system	-	capacitive	capacitive	capacitive
motion in closed loop *	μm	160	240	320
resolution (open/closed loop)***	nm	2	3	4
typ. repeatability	nm	± 5.5	± 6	± 10
typ. non-linearity	%	0.01	0.05	0.02
connector voltage	-	(please see table above)		
connector feedback sensor	-	LEMO.0S.304 OR ODU 4 pin (part no. suffix „E“) OR included in connector Sub-D15 (part no. with suffix „D“)		
weight / cable length	g / m	210 / 1.6	210 / 1.6	210 / 1.6
dimensions (LxWxH)	mm	70.5x48x20	70.5x48x20	70.5x48x20

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- * 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
- **** examples of additional connector variations depending on stage configuration:

product name	description	specials	part no. suffix
PX 200 CAP Digital	Version for digital controller series d-Drive and 30DV50 in combination with additional functionalities: Interchangeability, ASI, ASC	connector: D-Sub 15	T-108-06D
PX 300 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-107-01E



image: PX 400 CAP



image: PX 200 SG

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