PXY 102

2D piezo positioning stages with central opening

Image: PXY 102

Concept:

The piezo 2D stage PXY 102 is extremely compact and offer motions of up to 100 µm in open loop in XY axes. The unique cube like mechanical design allows parallel motion without play. They are well suited for many applications reaching from optical research to OEM systems. Probe alignment in microscopes usually requires an open center space (e. g. for the passage of light).The 2D piezo stage model PXY 102 with their central aperture of 40 mm were developed considering such applications. High stiffness, in combination with excellent straightness of motion, make the PXY 102 ideal for high precision in the nano meter range for optics, laser–technique, and any other type of high resolution positioning applications.

Specials:

Piezo electrical actuators can act much faster, and with a higher accuracy to a signal change, than any motorized drive available. Each axis can be controlled separately in closed loop mode. An integrated sensor system is an available option that guarantees accuracy in the nanometer range. The simultaneous motion, available in XY directions, offers a large degree of freedom during use. The PXY 102 can be made with special materials for extraordinary applications such as vacuum or cryogenic applications.

Assembling:

The stages are designed to be mounted, by the use of two through holes located diagonal from each other. Components can be mounted on the top plate by two diagonal tapped holes and can be accurately located by using the precision pin holes.

Product highlights:

- 2D nano positioning stage
- central opening 40 mm
- XY motion range 100 µm
- optional integrated feedback sensors
- motion without mechanical play
- highest positioning resolution
- stage design for microscopy platforms
- high resonant frequency precise for line scanning application

Application:

- AFM and microscopy
- Micromanipulation
- Cantilever adjustment
- Probe scanners
- Wafer stepper and lithographic

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Technical data:

PXY 102		unit	PXY 102	PXY 102 SG	PXY 102 CAP
part no.		–	T–205–10 (D–E)	T–205–11 (D–E)	T–205–16 (D–E)
axes		–		X/Y	
motion in open loop (±10%)*		µm	100	100	100
motion in closed loop *		µm	–	80	80
electrical capacitance per axis (±20%)		µF	1.7	1.7	1.7
integrated measurement system		–	–	SG	CAP
resolution***		nm	0.2	2	1
typ. repeatability		nm	–	±17	±10
resonant frequency (X/Y)		Hz	330/320	330/320	330/320
stiffness (X/Y)		N/µm	1/1	1/1	1/1
max. force generation (X/Y)	**pull**	N	10/10/	10/10	10/10
	push		100/100	100/100	100/100
cable length		m	1.0	1.2	1.6
material		–		stainless steel/aluminum	
dimensions (LxWxH)		mm	80 x 80 x 30	80 x 80 x 30	80 x 80 x 30
central opening Ø		mm	40	40	40
weight		g	520	610	700

* typical value measured with NV40/3 CLE amplifier

** typical value for small electrical field strength

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

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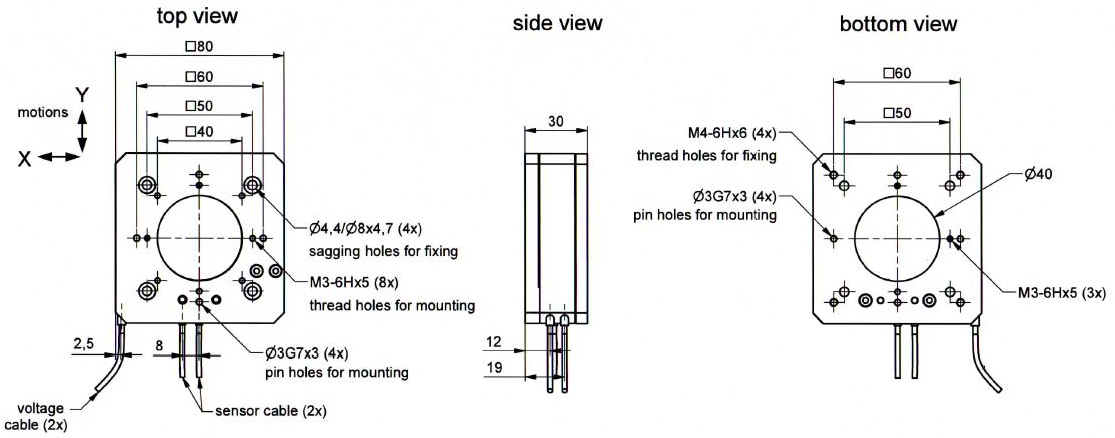
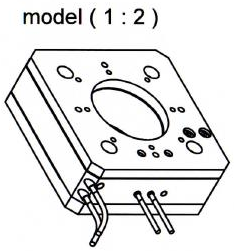
Types of connectors:

Product name	Description	Specials	Part. No Suffix.
PXY 102 Digital	Version for digital controller series d–Drive and NV40/3 controller in combination with additional functionalities: Interchange ability, ASI and ASC	Connector Sub–d 15	T–205–10 D
PXY 102 SG Digital			T–205–11 D
PXY 102 CAP Digital			T–205–16 D
PXY 102 SG Extern	Version with sensor pre–amplifier for the use of additional functionalities: Interchange ability, ASI	Plug voltage: LEMO 0S.302 Plug sensor SG: ODU 4pin Plug sensor CAP: LEMO 0S.650	T–205–11 E
PXY 102 CAP Extern			T–205–16 E
PXY 102	Connector style according to the piezo controller series ENV, 30V300 OEM and 12V40 OEM	Plug voltage: LEMO 0S.302 Plug sensor SG: LEMO 0S.304 Plug sensor CAP: LEMO 0S.650	T–205–10
PXY 102 SG			T–205–11
PXY 102 CAP			T–205–16





cable length
standard version 1,2m
external / digital version 2m
vacuum version on request

ORIGINAL

part.-no.	part.-name
T-205-x1 (D/E)	PXY 102 SG (DIG) (VAC)
file name: PT205x1	OK: date/sign: 15. JULI 2014
scale: 1:2	customers drawing piezosystem jena

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