TRITOR 38

Compact 3-D translation stage

Concept:

With the release of the TRITOR series, **piezosystem jena** was the first company to offer compact 3D piezo-nanopositioning stages worldwide. The dimensions of 25 x 25 x 25 mm^3 and a motion range of 38 µm per axis make the TRITOR 38 one of the smallest 3D stages available on the market. The unique design of the flexure hinges allows for excellent usability with zero friction. With a combination of high stiffness and excellent straightness of motion, the TRITOR series is ideal for high precision positioning in the nano meter range for optics, laser-technique, and any other type of high resolution positioning application.

Specials:

Piezo electrical actuators can act much faster, and with a higher accuracy, than any motorized drive available. The resolutions of piezo electrical actuators are only limited by the signal noise of the control system. Therefore, these systems are an excellent choice for positioning applications in fiber alignment, optics, wafer handling, medical equipment, etc. Dynamic scan applications are a typical utilization for the elements of the TRITOR series. The simultaneous motion, available in X, Y and Z directions, offers large freedom during use. All stages in the TRITOR series can be made with special materials for extraordinary applications such as vacuum or cryogenic applications.

Interfaces:

All stages are constructed with a top and a bottom plate. Through holes are used for fixing the stage which is important for all dynamic applications. On the top plate there are several pin holes and threaded holes for the mounting of external components.

The 3D elements are built with reliable piezo stack actuators, with a flexible insulation that is well suited for a high dynamic burden.

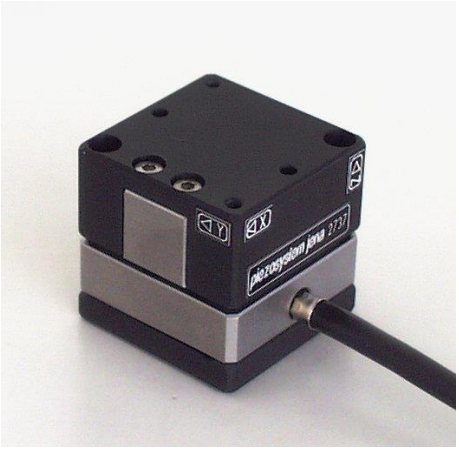

image: TRITOR 38

Product highlights:

- 3D nano positioning stage
- compact design
- flexure hinge design without mechanical play
- motion range up to 38 µm
- ultra precise translation based on FEA-optimized parallelogram design
- highest positioning resolution

Applications:

- AFM and SFM microscopy
- Fiber alignment
- Beam steering/optical technology
- Wafer stepper

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Technical data:

Series TRITOR		unit	TRITOR 38	TRITOR 38 SG
part no.		-	T-402-00	T-402-01
axes		-	X, Y, Z	
motion in open loop (±10%)*		µm	38	38
motion in closed loop (±0,2%)*		µm	-	30
electrical capacitance per axis (±20%)**		µF	0.7	
integrated measurement system		-	-	DMS
resolution***		nm	0.07	0.8
typ. repeatability		nm	-	22
typ. non linearity		%	-	0.1
resonant frequency x/y/z		Hz	630/685/915	
stiffness		N/µm	0.5/0.45/0.8	
max. force generation x/y/z	**pull**	N	2/2/3	
	push		19/17/30	
voltage range		V	-20...+130	
connector****	**voltage**	-	LEMO 0S.302	
	sensor	-	-	LEMO 0S.304
cable length		m	1.2	
material		-	stainless steel/ aluminum	
dimensions (LxWxH)		mm	25 x 25 x 25	40 x 40 x 33.5
weight		g	115	130

* 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

****Additional Variations:

Rights reserved to change specifications as progress occurs without notice!

Product name	Description	Specials	Part. No Suffix.
TRITOR 38 SG Digital	Version for digital controller series d-Drive and NV40/3 controller in combination with additional functionalities: Interchange ability, ASI	Connector Sub-D 15	T-402-01D
TRITOR 38 SG Extern	Version with sensor pre-amplifier for the use of additional functionalities: Interchange ability, ASI	Connector Sensor: ODU 4pin	T-402-01E
TRITOR 38 Vacuum	Compatible for vacuum applications down to 10^-7 hPa	60 cm cable length vacuum side; 2m cable length air side	T-402-02

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