

ANSxyz100

large range xyz-scanner

Technology	
travel mechanism	piezo driven lever arm mechanism

Size and Dimensions	
footprint; height	24 x 24; 10 mm

Fine Positioning Mode	
scan range (xy)	40 x 40 μm^2 @ 300 K, 30 x 30 μm^2 @ 4 K
scan range (z)	4.3 μm @ 300 K, 2 μm @ 4 K
scan resolution	24 μm @ 300 K, 15 μm @ 4 K
scan resolution	sub-nm resolution

Coarse Positioning Mode	
travel (step mode)	no coarse positioning capability

Materials (non-magnetic)	
positioner body	Titanium (other materials on request)
actuator	PZT ceramics
connecting wires	3 twisted pairs, Cu wires
weight	19 g

Load	
maximum vertical load	100 g
maximum torque on the axis	20 Ncm
maximum bandwidth	100 Hz

Mounting	
frontside mounting	two through holes for M2
backside mounting	two threads M2.5 x 4 mm
load mounting	four threads M2 x 3 mm

Article Numbers			
/RT Version	1001239	/LT Version	1001238
/HV Version	1001309	/LT/HV Version	1001311
/UHV Version	1001312	/LT/UHV Version	1001310

Compatibility with Electronics	
ANC300 piezo positioning controller	all versions
ANC350 piezo positioning controller	all versions

Working Conditions

mounting orientation	xy horizontally, z vertically
magnetic field range	0 .. 31 T
temperature range (/RT, /HV, /UHV)	0 .. 100 °C
temperature range (/LT, /LT/HV, /LT/UHV)	10 mK .. 373 K, Test @ 4.2 K
max. bake out temperature (/UHV, /LT/UHV)	150 °C
minimum pressure (/RT, /LT)	1E-4 mbar
minimum pressure (/HV, /LT/HV)	1E-8 mbar
minimum pressure (/UHV, /LT/UHV)	5E-11 mbar

Connectors and Feedthroughs	/RT, /LT Versions	all /HV, /UHV Versions
connector type	three 2-pole pin plugs, \varnothing 0.5 mm, d = 2 mm,	three 2-pole pin plugs (PEEK), \varnothing 0.5 mm, d = 2 mm,
connector type	30 cm cable with connector	30 cm cable with connector
electrical feedthrough solution	VFT/LT	VFT/HV, VFT/UHV

Temperature Dependent Data

	@ 300K	@ 4K (only /LT versions)
input voltage range	x, y: 0 .. +60 V; z: 0 .. +60 V	0 .. +150 V
typical actuator capacitance	5400, 5400, 1400 nF	750, 750, 200 nF
typical step size (min .. max)	---	---
fine positioning range	40 x 40 x 24 μm^3	30 x 30 x 15 μm^3

Accuracy of Movement

repeatability	typically 0.1 %
resonance frequency (typically higher than)	---
creep	typically 0.5 - 0.8 % per decade of time
linearity	typically 5 - 10 %

