

ANPz101

Technical Specifications

travel mechanism inertial piezo drive positioner type linear Size and Dimensions footprint; height 24x24; 20mm max installation space 24x24; 25mm weight 36 g Materials positioner body titanium (upgrade option: copper beryllium) actuator PZT ceramics connecting wires insulated twisted pair, copper Options environmental options /HV, /LT, /LT/HV, /LT/UHV, /RT, /UHV Compatibility with Electronics ANC300 piezo positioning controller ANM150, ANM300 Load (@ ambient conditions) maximum torque on the axis 10 Ncm maximum load 2 N maximum dynamic force along the axis 5 N Coarse Positioning Mode input voltage range 0 - 60 V typical actuator capacitance @ 300 K 1.11 µF typical actuator capacitance @ 4 K 0.15 µF travel range (step mode) 5 mm typical minimum step size @ 300 K 10 nm maximum drive velocity @ 300 K approx. 3 mm/s Fine Positioning Mode fine positioning range @ 300 K 5 µm fine positioning range @ 300 K 0 - 100 V input DC voltage range @ 300 K 0 - 100 V input DC voltage range @ 4 K 0 - 150 V Accuracy of Movement repeatability of step sizes typically 5 - 10 % depending on load	Technology	
Size and Dimensions footprint; height 24x24; 20mm max installation space 24x24; 25mm weight 36 g Materials positioner body beryllium) actuator PZT ceramics connecting wires insulated twisted pair, copper poptions environmental options /HV, /LT, /LT/HV, /LT/UHV, /RT, /UHV Compatibility with Electronics ANC300 piezo positioning controller ANM150, ANM300 Load (@ ambient conditions) maximum torque on the axis 10 Ncm maximum load 2 N maximum dynamic force along the axis 5 N Coarse Positioning Mode input voltage range 0 - 60 V typical actuator capacitance @ 300 K 1.11 µF typical actuator capacitance @ 4 K 0.15 µF travel range (step mode) 5 mm typical minimum step size @ 300 K 50 nm typical minimum step size @ 300 K 10 nm maximum drive velocity @ 300 K approx. 3 mm/s Fine Positioning Mode fine positioning range @ 4 K 0.8 µm fine positioning range @ 300 K 0 - 100 V input DC voltage range @ 4 K 0 - 150 V Accuracy of Movement repeatability of step sizes typically 5 % over full range	travel mechanism	inertial piezo drive
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connecting wires insulated twisted pair, copper Options environmental options /HV, /LT, /LT/HV, /LT/UHV, /RT, /UHV Compatibility with Electronics ANC300 piezo positioning controller ANM150, ANM300 Load (@ ambient conditions) maximum torque on the axis 10 Ncm maximum dynamic force along the axis 5 N Coarse Positioning Mode input voltage range 0 - 60 V typical actuator capacitance @ 300 K 1.11 µF travel range (step mode) 5 mm typical minimum step size @ 300 K 50 nm typical minimum step size @ 4 K 10 nm maximum drive velocity @ 300 K approx. 3 mm/s Fine Positioning Mode fine positioning range @ 4 K 0.8 µm fine positioning range @ 4 K 0.8 µm fine positioning resolution sub-nm input DC voltage range @ 300 K 0 - 100 V input DC voltage range @ 4 K 0 - 150 V Accuracy of Movement repeatability of step sizes typically 5 % over full range	positioner body	
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Compatibility with Electronics ANC300 piezo positioning controller Load (@ ambient conditions) maximum torque on the axis 10 Ncm maximum load 2 N maximum dynamic force along the axis 5 N Coarse Positioning Mode input voltage range 0 - 60 V typical actuator capacitance @ 300 K 1.11 µF typical actuator capacitance @ 4 K 0.15 µF travel range (step mode) 5 mm typical minimum step size @ 300 K 50 nm typical minimum step size @ 4 K 10 nm maximum drive velocity @ 300 K Fine Positioning Mode fine positioning range @ 300 K fine positioning range @ 4 K 0.8 µm fine positioning resolution input DC voltage range @ 300 K 0 - 100 V input DC voltage range @ 4 K Accuracy of Movement repeatability of step sizes typically 5 % over full range	Options	
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Load (@ ambient conditions) maximum torque on the axis 10 Ncm maximum load 2 N maximum dynamic force along the axis 5 N Coarse Positioning Mode input voltage range 0 - 60 V typical actuator capacitance @ 300 K 1.11 µF typical actuator capacitance @ 4 K 0.15 µF travel range (step mode) 5 mm typical minimum step size @ 300 K 50 nm typical minimum step size @ 4 K 10 nm maximum drive velocity @ 300 K Fine Positioning Mode fine positioning range @ 300 K fine positioning range @ 4 K 0.8 µm fine positioning resolution input DC voltage range @ 300 K 0 - 100 V input DC voltage range @ 4 K 0 - 150 V Accuracy of Movement repeatability of step sizes typically 5 % over full range	Compatibility with Electronics	
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maximum load 2 N maximum dynamic force along the axis 5 N Coarse Positioning Mode input voltage range 0 - 60 V typical actuator capacitance @ 300 K 1.11 µF typical actuator capacitance @ 4 K 0.15 µF travel range (step mode) 5 mm typical minimum step size @ 300 K 50 nm typical minimum step size @ 4 K 10 nm maximum drive velocity @ 300 K approx. 3 mm/s Fine Positioning Mode fine positioning range @ 300 K 5 µm fine positioning range @ 300 K 5 µm fine positioning resolution sub-nm input DC voltage range @ 300 K 0 - 100 V input DC voltage range @ 4 K 0 - 150 V Accuracy of Movement repeatability of step sizes typically 5 % over full range	Load (@ ambient conditions)	
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Coarse Positioning Mode input voltage range typical actuator capacitance @ 300 K 1.11 µF typical actuator capacitance @ 4 K typical gester mode) typical minimum step size @ 300 K typical minimum step size @ 300 K typical minimum step size @ 4 K 10 nm maximum drive velocity @ 300 K approx. 3 mm/s Fine Positioning Mode fine positioning range @ 300 K fine positioning range @ 300 K fine positioning range @ 4 K 0.8 µm fine positioning resolution sub-nm input DC voltage range @ 300 K 0 - 100 V input DC voltage range @ 4 K Accuracy of Movement repeatability of step sizes typically 5 % over full range	maximum load	2 N
input voltage range 0 - 60 V typical actuator capacitance @ 300 K 1.11 µF typical actuator capacitance @ 4 K 0.15 µF travel range (step mode) 5 mm typical minimum step size @ 300 K 50 nm typical minimum step size @ 4 K 10 nm maximum drive velocity @ 300 K approx. 3 mm/s Fine Positioning Mode fine positioning range @ 300 K 5 µm fine positioning range @ 4 K 0.8 µm fine positioning resolution sub-nm input DC voltage range @ 300 K 0 - 100 V input DC voltage range @ 4 K 0.150 V Accuracy of Movement repeatability of step sizes typically 5 % over full range	maximum dynamic force along the axis	5 N
typical actuator capacitance @ 300 K typical actuator capacitance @ 4 K typical actuator capacitance @ 4 K 0.15 µF travel range (step mode) 5 mm typical minimum step size @ 300 K 50 nm typical minimum step size @ 4 K 10 nm maximum drive velocity @ 300 K Fine Positioning Mode fine positioning range @ 300 K 5 µm fine positioning range @ 4 K 0.8 µm fine positioning resolution sub-nm input DC voltage range @ 300 K 0 - 100 V input DC voltage range @ 4 K Accuracy of Movement repeatability of step sizes typically 5 % over full range	Coarse Positioning Mode	
typical actuator capacitance @ 4 K	input voltage range	0 - 60 V
typical minimum step size @ 300 K typical minimum step size @ 300 K typical minimum step size @ 4 K 10 nm maximum drive velocity @ 300 K Fine Positioning Mode fine positioning range @ 300 K fine positioning range @ 4 K fine positioning resolution input DC voltage range @ 300 K o - 100 V input DC voltage range @ 4 K Accuracy of Movement repeatability of step sizes 5 mm 5 nm 4 0 nm 5 μm 5 μm 6 - 100 V 7 - 100 V 7 - 100 V 8 - 150 V 9 - 150 V 9 - 150 V 9 - 150 V 10 - 150 V	typical actuator capacitance @ 300 K	1.11 μF
typical minimum step size @ 300 K 50 nm typical minimum step size @ 4 K 10 nm maximum drive velocity @ 300 K approx. 3 mm/s Fine Positioning Mode fine positioning range @ 300 K 5 µm fine positioning range @ 4 K 0.8 µm fine positioning resolution sub-nm input DC voltage range @ 300 K 0 - 100 V input DC voltage range @ 4 K 0.5 V Accuracy of Movement repeatability of step sizes typically 5 % over full range	typical actuator capacitance @ 4 K	0.15 μF
typical minimum step size @ 4 K 10 nm maximum drive velocity @ 300 K approx. 3 mm/s Fine Positioning Mode fine positioning range @ 300 K 5 µm fine positioning range @ 4 K 0.8 µm fine positioning resolution sub-nm input DC voltage range @ 300 K 0 - 100 V input DC voltage range @ 4 K 0.5 V Accuracy of Movement repeatability of step sizes typically 5 % over full range	travel range (step mode)	5 mm
maximum drive velocity @ 300 K approx. 3 mm/s Fine Positioning Mode fine positioning range @ 300 K 5 µm fine positioning range @ 4 K 0.8 µm fine positioning resolution sub-nm input DC voltage range @ 300 K 0 - 100 V input DC voltage range @ 4 K 0 - 150 V Accuracy of Movement repeatability of step sizes typically 5 % over full range	typical minimum step size @ 300 K	50 nm
Fine Positioning Mode fine positioning range @ 300 K 5 µm fine positioning range @ 4 K 0.8 µm fine positioning resolution sub-nm input DC voltage range @ 300 K 0 - 100 V input DC voltage range @ 4 K 0 - 150 V Accuracy of Movement repeatability of step sizes typically 5 % over full range	typical minimum step size @ 4 K	10 nm
fine positioning range @ 300 K 5 μm fine positioning range @ 4 K 0.8 μm fine positioning resolution sub-nm input DC voltage range @ 300 K 0 - 100 V input DC voltage range @ 4 K 0 - 150 V Accuracy of Movement repeatability of step sizes typically 5 % over full range	maximum drive velocity @ 300 K	approx. 3 mm/s
fine positioning range @ 4 K	Fine Positioning Mode	
fine positioning resolution sub-nm input DC voltage range @ 300 K 0 - 100 V input DC voltage range @ 4 K 0 - 150 V Accuracy of Movement repeatability of step sizes typically 5 % over full range	fine positioning range @ 300 K	5 μm
input DC voltage range @ 300 K 0 - 100 V input DC voltage range @ 4 K 0 - 150 V Accuracy of Movement repeatability of step sizes typically 5 % over full range	fine positioning range @ 4 K	0.8 μm
input DC voltage range @ 4 K 0 - 150 V Accuracy of Movement repeatability of step sizes typically 5 % over full range	fine positioning resolution	sub-nm
Accuracy of Movement repeatability of step sizes typically 5 % over full range	input DC voltage range @ 300 K	0 - 100 V
Accuracy of Movement repeatability of step sizes typically 5 % over full range	input DC voltage range @ 4 K	0 - 150 V
repeatability of step sizes typically 5 % over full range		
forward / backward step asymmetry typically 5 - 10 % depending on load	•	typically 5 % over full range
	forward / backward step asymmetry	typically 5 - 10 % depending on load

Mounting	
no. of through holes at the top	2
diameter of through holes at the top	2.2 mm
type of screw at the top	M2
no. of threads at the bottom	2
type of screw at the bottom	M2.5 x 3.4 mm
no. of threads for load on top	10
type of screw for load on top	M2 x 3.3 mm
Working Conditions	
mounting orientation	axis vertical
magnetic field range	0-31T
minimum pressure (/RT)	1E-4 mbar
minimum pressure (/HV)	1E-8 mbar
minimum pressure (/UHV)	5E-11 mbar
temperature range (/RT)	273K 373K
temperature range (/LT)	10mK 373K
Connectors and Feedthroughs	
cable	30 cm cable with connector
Versions	
/RT version	1001485
/HV version	1001484
/UHV version	1001483
/LT version	1001486
/LT/HV version	1001487
/LT/UHV version	1001488
/HL/RT version	1009658
/HL/HV version	1009659
/HL/UHV version	1009660
/HL/LT version	1009661
/HL/LT/HV version	1009662
/HL/LT/HV version /HL/LT/UHV version	1009662 1009664

Technical Drawings









