

ANPx101/RES

linear, horizontal stepper positioner with resistive encoder for closed loop operation

| Technology | | | |
|--------------------------------------|---------------------------------------|-----------------|---------|
| travel mechanism | inertial piezo drive | | |
| Size and Dimensions | | | |
| footprint; height | 24 x 24; 11 mm | | |
| maximum size | 29 x 24; 11 mm | | |
| Coarse Positioning Mode | | | |
| travel (step mode) | 5 mm | | |
| typical minimum step size | 50 nm @ 300 K, 10 nm @ 4 K | | |
| maximum speed (@ 300 K, no load) | approx. 3 mm/s | | |
| Fine Positioning Mode | | | |
| scan range | 5 µm @ 300 K, 0,8 µm @ 4 K | | |
| scan resolution | sub-nm resolution | | |
| Materials (non-magnetic) | | | |
| positioner body | Titanium (other materials on request) | | |
| actuator | PZT ceramics | | |
| connecting wires | insulated twisted pair, Cu | | |
| weight | 20 g | | |
| Load | | | |
| maximum vertical load | 100 g | | |
| maximum static forces along the axis | 4 N | | |
| maximum dynamic force along the axis | 2 N | | |
| maximum torque on the axis | 10 Ncm | | |
| Mounting | | | |
| frontside mounting | two through holes for M2 | | |
| backside mounting | two threads M2.5 x 4 mm | | |
| load mounting | six threads M2 x 3 mm | | |
| Article Numbers | | | |
| /RT Version | 1002807 | /LT Version | 1002810 |
| /HV Version | 1002808 | /LT/HV Version | 1002811 |
| /UHV Version | 1002809 | /LT/UHV Version | 1002812 |
| Compatibility with Electronics | | | |
| ANC350 piezo controller | all versions | | |

| Working Conditions | | |
|---|---|---|
| mounting orientation | axis horizontal | |
| 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 | |
| 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 | 2-pole pin plug, ø 0.5 mm, d = 2 mm, | 2-pole pin plug (PEEK), ø 0.5 mm, d = 2 mm, |
| connector type | 30 cm cable with connector | 30 cm cable with connector |
| electrical feedthrough solution | COC230/LT | COC230/HV, COC230/UHV |
| encoder connector | additional 3-pole plug | additional 3-pole plug (Peek) |
| Temperature Dependent Data | | |
| | @ 300K | @ 4K (only /LT versions) |
| input voltage range | 0 .. +100V | 0 .. +100V |
| typical actuator capacitance | 1050 nF | 150 nF |
| typical step size (min .. max) | 0.05 .. 2 µm | 10 .. 500 nm |
| fine positioning range | 5 µm | 0,8 µm |
| Accuracy of Movement | | |
| repeatability of step sizes | typically 5 % over full range | |
| forward / backward step asymmetry | typically 5 % | |
| Position Encoder | | |
| readout mechanism | resistive encoder, potentiometric measurement | |
| sensor power (when measuring) | < 1 mW possible | |
| encoded travel range | full travel | |
| sensor resolution | approx. 200 nm | |
| repeatability | 1 - 2 µm | |
| linearity (over full travel) | 1% | |

