

## ANPx101eXT20

linear, horizontal stepper positioner with extended travel range of 20 mm

| Technology       |                      |
|------------------|----------------------|
| travel mechanism | inertial piezo drive |

| Size and Dimensions |                  |
|---------------------|------------------|
| footprint; height   | 24 x 48; 11.5 mm |
| maximum size        | 24 x 48; 11.5 mm |

| Coarse Positioning Mode          |                            |
|----------------------------------|----------------------------|
| travel (step mode)               | 20 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            | 7.5 µm @ 300 K, 1.2 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                   | 35 g                                  |

| Load                                 |        |
|--------------------------------------|--------|
| maximum vertical load                | 200 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 | four through holes for M2 |
| backside mounting  | four threads M2,5 x 4 mm  |
| load mounting      | six threads M2 x 3 mm     |

| Article Numbers |         |                 |         |
|-----------------|---------|-----------------|---------|
| /RT Version     | 1003875 | /LT Version     | 1003878 |
| /HV Version     | 1003876 | /LT/HV Version  | 1003879 |
| /UHV Version    | 1003877 | /LT/UHV Version | 1003880 |

| Compatibility with Electronics      |                  |
|-------------------------------------|------------------|
| ANC106 piezo step controller        | /RT version only |
| ANC300 piezo positioning controller | all versions     |
| ANC350 piezo positioning 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                  | integrated 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            | 0 .. +100V   | 0 .. +100V               |
| typical actuator capacitance   | 1550 nF      | 220 nF                   |
| typical step size (min .. max) | 0.05 .. 2 µm | 10 .. 500 nm             |
| fine positioning range         | 7.5 µm       | 1.2 µm                   |

| Accuracy of Movement              |                               |
|-----------------------------------|-------------------------------|
| repeatability of step sizes       | typically 5 % over full range |
| forward / backward step asymmetry | typically 5 %                 |

| Position Encoder |            |
|------------------|------------|
| encoder options  | /NUM, /RES |

