

Make Your Motion and Control More Accurate!

# Zaxis | P76.Z100S/K Piezo Objective Scanner





P76.Z100 piezoelectric objective scanner features a large load capacity up to 0.5kg, Z-axis linear motion range up to 100µm, adopting flexible hinge mechanism, no friction, good linearity, high closed-loop positioning accuracy.

# Characteristics >>

- Active axes Z
- Travel to 100µm
- Load capacity to 0.5kg
- Millisecond response time
- Closed loop for high repeatability

# Applications >>

- 3D imaging
- Surface structure analysis
- Biotechnology
- Interference/metering
- Confocal microscope
- Semiconductor test



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# Technical Data >>

| TypeS-Closed loop<br>K-Open loopP76.Z100SP76.Z100KUnitsActive axisZZTravel range(0~120V)8080 $\mu$ m±10%Travel range(0~150V)100100 $\mu$ m±10%Integrated sensorSGS-Resolution31nmLinearity0.03-%F.S.Repeatability0.02-%F.S.Push/pull forc70/1070/10NStiffness0.80.8N/µm±20%Unloaded resonant frequency800800Hz±20%Closed-loop operating<br>frequency (-3dB)160160<br>(unloaded)Hz±20%Unloaded step time52ms±20%Load capacity0.50.5kgEl. capacitance7.27.2µF±20%Operating temperature <sup>[1]</sup> -20~80-20~80°CMaterialSteel, AlSteel, AlSteel, Al  |                                      |  |           |           |          |
|--|--------------------------------------|--|-----------|-----------|----------|
| Travel range(0~120V)     80     80 $\mu$ m±10%       Travel range(0~150V)     100     100 $\mu$ m±10%       Integrated sensor     SGS     -       Resolution     3     1     nm       Linearity     0.03     -     %F.S.       Repeatability     0.02     -     %F.S.       Push/pull force     70/10     N     N       Stiffness     0.8     0.8     N/µm±20%       Unloaded resonant frequency     800     800     Hz±20%       Closed-loop operating<br>frequency (-3dB)     160     160     Hz±20%       Unloaded step time     5     2     ms±20%       Load capacity     0.5     0.5     kg       El. capacitance     7.2     7.2     µF±20%       Operating temperature <sup>[11]</sup> -20~80     -20~80     °C       Material     Steel, Al     Steel, Al     Steel, Al | Туре                                 |  | P76.Z100S | P76.Z100K | Units    |
| $\begin{array}{c c c c c c c } Travel range(0~150V) & 100 & 100 & $\mu$m$\pm$10\%$ \\ Integrated sensor & $SGS & $-$ \\ \hline Resolution & $3$ & $1$ & $n$m$ \\ Inearity & $0.03$ & $-$ & $\%FS.$ \\ Repeatability & $0.02$ & $-$ & $\%FS.$ \\ Push/pull force & $70/10$ & $70/10$ & $N$ \\ Stiffness & $0.8$ & $0.8$ & $N$/$\mu$m$\pm$20\%$ \\ Unloaded resonant frequency & $800$ & $800$ & $Hz$\pm$20\%$ \\ Closed-loop operating & $160$ & $160$ \\ frequency (-3dB)$ & $(unloaded)$ & $(unloaded)$ \\ Unloaded step time & $5$ & $2$ & $m$\pm$20\%$ \\ Load capacity & $0.5$ & $0.5$ & $kg$ \\ El. capacitance & $7.2$ & $7.2$ & $\mu$F$\pm$20\%$ \\ Operating temperature[1]$ & $-20~80$ & $-20~80$ & $\%C$ \\ \hline Material & $Steel, Al$ & $Steel, Al$ } \end{array}$ | Active axis                          |  | Z         | Z         |          |
| Integrated sensor     SGS     -       Resolution     3     1     nm       Linearity     0.03     -     %F.S.       Repeatability     0.02     -     %F.S.       Push/pull force     70/10     70/10     N       Stiffness     0.8     0.8     N/µm±20%       Unloaded resonant frequency     800     800     Hz±20%       Closed-loop operating<br>frequency (-3dB)     160     160     Hz±20%       Unloaded step time     5     2     ms±20%       Load capacity     0.5     0.5     kg       El. capacitance     7.2     7.2     µF±20%       Operating temperature <sup>[1]</sup> -20~80     -20~80     °C       Material     Steel, Al     Steel, Al     Steel, Al  | Travel range(0~120V)                 |  | 80        | 80        | µm±10%   |
| Resolution     3     1     nm       Linearity     0.03     -     %F.S.       Repeatability     0.02     -     %F.S.       Push/pull force     70/10     70/10     N       Stiffness     0.8     0.8     N/µm±20%       Unloaded resonant frequency     800     800     Hz±20%       Closed-loop operating<br>frequency (-3dB)     160     160     Hz±20%       Unloaded step time     5     2     ms±20%       Load capacity     0.5     0.5     kg       El. capacitance     7.2     7.2     µF±20%       Operating temperature <sup>[1]</sup> -20~80     -20~80     °C       Material     Steel, All     Steel, All     Steel, All   | Travel range(0~150V)                 |  | 100       | 100       | µm±10%   |
| Linearity     0.03     -     %F.S.       Repeatability     0.02     -     %F.S.       Push/pull force     70/10     70/10     N       Stiffness     0.8     0.8     N/µm±20%       Unloaded resonant frequency     800     800     Hz±20%       Closed-loop operating     160     160     Hz±20%       Unloaded step time     5     2     ms±20%       Load capacity     0.5     0.5     kg       El. capacitance     7.2     7.2     µF±20%       Operating temperature <sup>[1]</sup> -20~80     -20~80     °C       Material     Steel, All     Steel, All     Steel, All   | Integrated sensor                    |  | SGS       | -         |          |
| Repeatability     0.02     -     %F.S.       Push/pull force     70/10     70/10     N       Stiffness     0.8     0.8     N/µm±20%       Unloaded resonant frequency     800     800     Hz±20%       Closed-loop operating<br>frequency (-3dB)     160     160     Hz±20%       Unloaded step time     5     2     ms±20%       Load capacity     0.5     0.5     kg       El. capacitance     7.2     7.2     µF±20%       Operating temperature <sup>[1]</sup> -20~80     °C       Material     Steel, Al     Steel, Al     Steel, Al  | Resolution                           |  | 3         | 1         | nm       |
| Push/pull force     70/10     70/10     N       Stiffness     0.8     0.8     N/ $\mu$ m±20%       Unloaded resonant frequency     800     800     Hz±20%       Closed-loop operating<br>frequency (-3dB)     160     160     Hz±20%       Unloaded step time     5     2     ms±20%       Load capacity     0.5     0.5     kg       El. capacitance     7.2     7.2 $\mu$ F±20%       Operating temperature <sup>[11]</sup> -20~80     -20~80     °C       Material     Steel, Al     Steel, Al     Steel, Al  | Linearity                            |  | 0.03      | -         | %F.S.    |
| $\begin{array}{llllllllllllllllllllllllllllllllllll$   | Repeatability                        |  | 0.02      | -         | %F.S.    |
| $\begin{array}{c c c c c c c c c c c c c c c c c c c $   | Push/pull force                      |  | 70/10     | 70/10     | N        |
|  | Stiffness                            |  | 0.8       | 0.8       | N/µm±20% |
|  | Unloaded resonant frequency          |  | 800       | 800       | Hz±20%   |
| Load capacity     0.5     0.5     kg       Load capacity     0.5     0.5     kg       El. capacitance     7.2     7.2     μF±20%       Operating temperature <sup>[1]</sup> -20~80     -20~80     °C       Material     Steel, Al     Steel, Al     Steel, Al  |                                      |  |           |           | Hz±20%   |
| El. capacitance     7.2     7.2     μF±20%       Operating temperature <sup>[1]</sup> -20~80     -20~80     °C       Material     Steel, Al     Steel, Al     Steel, Al  | Unloaded step time                   |  | 5         | 2         | ms±20%   |
| Operating temperature <sup>[1]</sup> -20~80 -20~80 °C   Material Steel, Al Steel, Al   | Load capacity                        |  | 0.5       | 0.5       | kg       |
| Material Steel, Al Steel, Al   | El. capacitance                      |  | 7.2       | 7.2       | μF±20%   |
|  | Operating temperature <sup>[1]</sup> |  | -20~80    | -20~80    | °C       |
| Mass 500 500 g±5%  | Material                             |  | Steel, Al | Steel, Al |          |
|  | Mass                                 |  | 500       | 500       | g±5%     |
| Cable length <sup>[2]</sup> 1.5 1.5 m±10mm   | Cable length <sup>[2]</sup>          |  | 1.5       | 1.5       | m±10mm   |

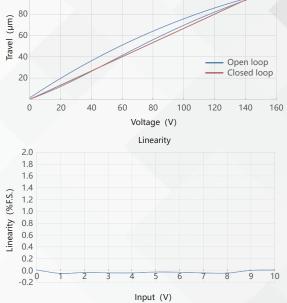
Note: Technical data are measured by CoreMorrow E00/E01 series piezo controller. Max driving voltage could be -20V~150V, 0~120V is recommended for long-term and high-reliable operation.Unless otherwise specified, the above parameters are measured at room temperature about 25° C.

Custom ultralow temperature and ultrahigh vacuum versions are available.
Custom cable length and connector is available.

Note: The parallelism of the moving platform is about  $20\mu m$ , and the roughness is about 1.6 to 3.2. Please contact the sales engineer for confirmation before purchase.

# 120 Travel vs Voltage

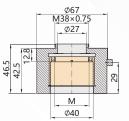
Curves >>



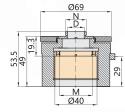
Disclaimer: The data here are typical, only for reference. Some variations will occur for different batch.

# Drawing >>

P76.Z100S/K



### P76.Z100S/K with Adapter



| M(Model)   | N(Model)   | D   |
|------------|------------|-----|
| M38×0.75   | /          | Ø27 |
| M32×0.75   | M32×0.75   | Ø27 |
| M28×0.75   | M28×0.75   | Ø23 |
| M27×0.75   | M27×0.75   | Ø22 |
| M26×0.75   | M26×0.75   | Ø21 |
| M26×1/36"  | M26×1/36"  | ø21 |
| M25×0.75   | M25×0.75   | Ø20 |
| W0.8×1/36" | W0.8×1/36" | Ø15 |
| M19×0.75   | M19×0.75   | Ø14 |
|            |            |     |

# Recommended Controllers >>



E01.D1 LCD, membrane button, up to 625mA RS-232/RS-422/USB interface Software secondary development

E53 Small size, 60mA RS-232/RS-422/USB interface Software secondary development

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