

# $\theta_x, \theta_y$ axes | P33.T2S/KF/Y Piezo Tip/Tilt Platform



## Introduction

P33.T2 Piezo Tip/Tilt Platform is a deflection platform with fast response and compact size. It provides high-precision angular motion of the top platform. Compared with other actuators, the flexible hinge-guided piezoelectric deflection platform provides higher acceleration.

### Characteristics >>

- $\theta_x, \theta_y$  tilt
- Tilt range to  $\pm 1.5\text{mrad/axis}$
- Sub-ms response time
- High closed-loop positioning accuracy
- High temperature stability

### Applications >>

- Laser scanning
- Image processing and stabilization
- Beam deflection
- Interlacing scanning, dithering
- Interference
- Light filter/optical switch
- Laser micromachine
- Active and adaptive optics



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## Technical Data >>

| Type                                    | S - closed loop<br>K - open loop | P33.T2SF/Y                             | P33.T2KF/Y             | Units                 |
|---|----------------------------------|--|------------------------|-----------------------|
| Active axes                             |                                  | $\theta_x, \theta_y$                   | $\theta_x, \theta_y$   |                       |
| Driving channels                        |                                  | 3                                      | 3                      |                       |
| Tilt angle (0~100V)                     |                                  | $2/\pm 1 (\approx \pm 206^\circ)$      |                        | mrad $\pm 10\%$       |
| Tilt angle (0~120V)                     |                                  | $2.5/\pm 1.25 (\approx \pm 257^\circ)$ |                        | mrad $\pm 10\%$       |
| Integrated sensor                       |                                  | SGS                                    | -                      |                       |
| Resolution                              |                                  | 0.05( $\approx 0.01^\circ$ )           | 0.02( $< 0.01^\circ$ ) | $\mu\text{rad}$       |
| Closed-loop linearity                   |                                  | 0.1                                    | -                      | %F.S.                 |
| Closed-loop repeatability               |                                  | 0.02                                   | -                      | %F.S.                 |
| Unloaded resonant frequency             |                                  | 3.7                                    | 3.7                    | kHz $\pm 20\%$        |
| Unloaded step time                      |                                  | 1.5                                    | 1                      | ms $\pm 20\%$         |
| El. capacitance                         |                                  | 3.6/axis                               | 3.6/axis               | $\mu\text{F}\pm 20\%$ |
| Operating temperature <sup>[1]</sup>    |                                  | -20~80                                 | -20~80                 | $^\circ\text{C}$      |
| Material                                |                                  | Steel                                  | Steel                  |                       |
| Platform Length L                       |                                  | 37                                     | 37                     | mm                    |
| Mass                                    |                                  | 190                                    | 190                    | g $\pm 5\%$           |
| Cable length <sup>[2]</sup>             |                                  | 1.5                                    | 1.5                    | m $\pm 10\text{mm}$   |
| Sensor/voltage connector <sup>[2]</sup> |                                  | -                                      | -                      |                       |

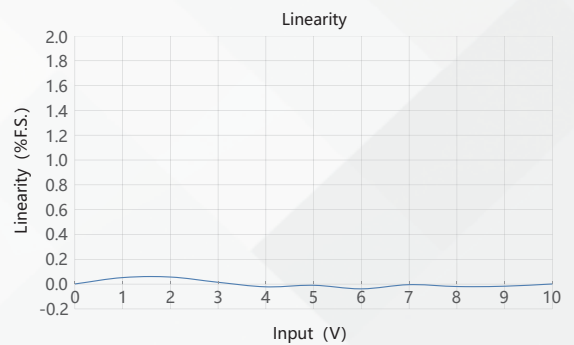
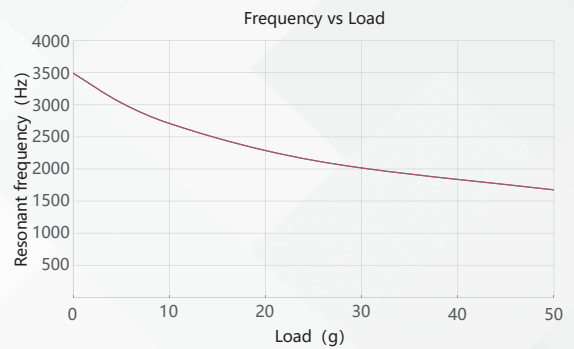
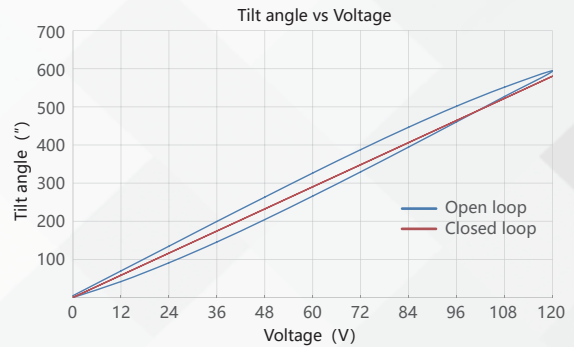
Note: Technical data are measured by CoreMorrow E00/E01 series piezo controller. Max driving voltage could be -20V~150V, 0~120V is recommended for long-term and high-reliable operation. Unless otherwise specified, the above parameters are measured at room temperature about 25 $^\circ\text{C}$ .

[1] Custom ultralow temperature and ultrahigh vacuum versions are available.

[2] Custom cable length and connector is available.

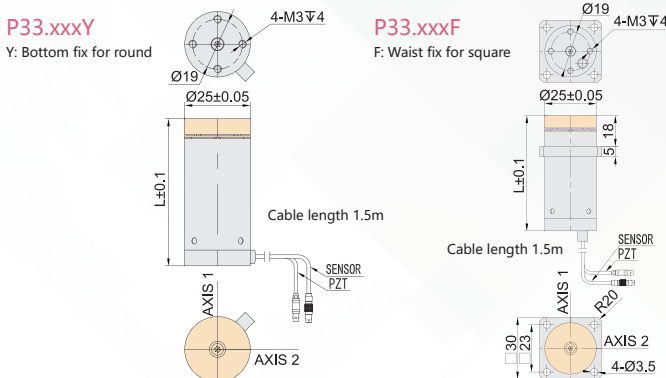
Note: The parallelism of the moving platform is about 20 $\mu\text{m}$ , and the roughness is about 1.6 to 3.2. Please contact the sales engineer for confirmation before purchase.

## Curves >>



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

## Drawing >>



## Recommended Controllers >>



**E01.D3**  
LCD, membrane button, up to 625mA  
RS-232/RS-422/USB interface  
Software secondary development



**E70**  
Small size, ave current 70mA/channel  
RS-232/RS-422/USB interface  
Software secondary development



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