

PSH 40 SG – Fine Steering Mirror

2-Axis Mirror Tilting System with Adjustable Pivot Point

Concept:

The PSH 40 is designed to withstand high acceleration and vibration environments. It features high resolution and low power consumption in combination with long term stability.

Specials:

The PSH 40 SG is developed as a fine steering mirror to withstand challenging environments, such as launch conditions and external shocks. Typical applications include space and aerospace vehicles, as well as space to ground communication.

Mirror positioning is possible within a tilting range of up to ± 18 mrad (open loop)/ ± 15 mrad (closed loop).

The tilting system PSH 40 SG can be equipped with an integrated positioning sensor. Positions can be controlled exactly, and a previously established tilt range can be set. The positioning is highly repeatable with 13 μ rad accuracy. Due to its three piezo stack designs, tip tilt motion is possible in two axes, while the pivot point can be moved to allow for highly adjustable beam guidance.

The system has completed a series of shock, sinusoidal and vibration tests and is ready for use in applications in challenging environmental conditions. The system has a small form factor with a height of only 32mm and a weight as low as 140g (depending on housing options).



image: PSH 40 (SG)

Product highlights:

- Sub- μ rad resolution / μ rad repeatability
- Tilting range up to ± 18 mrad (open loop) and ± 15 mrad (closed loop)
- Compact rigid design
- Perfect for dynamic environment

Applications:

- Fine Steering Mirrors
- Point Ahead Mechanism
- Beam Guidance
- Optical Intersatellite Links

Advantage:

- High resonant frequency
- Low power consumption
- Vacuum ready
- No magnetic interference

Options:

- Different mirror options
- Vacuum version
- Choice of different build materials

PSH40 SG

| | Unit | PSH 40 | | PSH 40 SG | |
|----------------------------------|--------|---------------------------------|-----------|-----------------------|-----------|
| Part no. | | K-340-00 | | K-340-01 (D/E) | |
| Axes | - | Øx | Øy | Øx | Øy |
| Tilting range open loop | mrاد | ±18 | | ±18 | |
| Tilting range closed loop | mrاد | - | | ±15 | |
| Resolution open loop* | µrad | 0.1 | | | |
| Repeatability | µrad/% | - | | 3.5/0.018% | |
| Max. non linearity | µrad/% | - | | 103.8/0.525 | |
| Electrical capacitance | µF | 1.7 (3x) | | | |
| Sensor | - | - | | strain gauge | |
| Voltage range | V | -20 ... +180 | | | |
| Resonant frequency | | | | | |
| With Ø18 x 4mm mirror | Hz | 400 | | | |
| | | | | | |
| Dimensions (l x w x h) | mm | 65 x 65 x 32 | | | |
| Temperature range | °C | -40 to +70 °C (-140°F to 158F) | | | |
| Material | - | Aluminum/Stainless steel | | | |
| Weight | g | 230 (8.11 oz) / 140 OEM version | | | |

* Resolution is limited only by the noise of control signal.

Specifications subject to change



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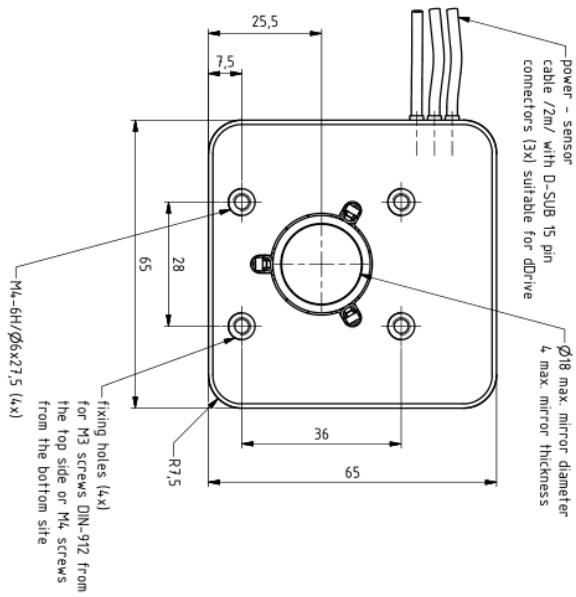
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Drawings

PSH40 SG



| date | rev. | initial version | rev. description | part-name | pic. date/sign |
|---|------|-----------------|------------------|-------------|----------------|
| 20.03.2022 | 0 | | | PSH 40 SG D | |
| <p>File name: PK34.001 Scale: M 1:1 Customer drawing: piezosystemjena</p> | | | | | |

