Objective lens actuators for upright inverted microscope employing piezo element actuator and digital sensor for feedback.

- Compact package for smooth integration into existing microscopes.
- Designed for high-speed, high-resolution positioning.
- Open loop travel is 100μm, closed loop travel is 80μm. Compared to the open-loop control, the maximum travel of closed-loop control will be less about 20%.
- Each model can be installed on a variety of upright or inverted microscopes. Thread inserts make it easy to integrate with different manufacturer’s standard threads.
- In the case of the Sigma fine stage series, these actuators can be driven with the controller (FINE-01Y/503CL). Recommended controllers are the FINE series controllers.

Guide

- Threaded inserts compatible with a variety of manufacturers’ objective lenses are also available (OBL-ADP).
- The SFS-OBL-2 uses a metal enclosure type piezo actuator for higher duty cycles and longer life in industrial environments.

Outline Drawing

![Outline Drawing](Image)

### Specifications

<table>
<thead>
<tr>
<th>Part Number</th>
<th>SFS-OBL-1</th>
<th>SFS-OBL-2</th>
<th>SFAI-OBL-1R</th>
</tr>
</thead>
<tbody>
<tr>
<td>Travel (at open-loop control)</td>
<td>100μm±15%</td>
<td>100μm±15%</td>
<td>100μm±15%</td>
</tr>
<tr>
<td>Objective Lens Diameter [mm]</td>
<td>Diameter φ39 or less</td>
<td>Diameter φ39 or less</td>
<td>Diameter φ39 or less</td>
</tr>
<tr>
<td>Dimensions [mm]</td>
<td>(W)75.5 × (H)45 × (D)940</td>
<td>(W)75.5 × (H)55 × (D)940</td>
<td>(W)60.8 × (H)63.0 × (D)940</td>
</tr>
<tr>
<td>Actuator</td>
<td>Piezo element</td>
<td>Piezo element</td>
<td>Piezo element</td>
</tr>
<tr>
<td>Weight [kg]</td>
<td>0.15</td>
<td>0.24</td>
<td>0.15</td>
</tr>
<tr>
<td>Theoretical Resolution (open-loop) [μm]</td>
<td>0.1 or lower</td>
<td>0.1 or lower</td>
<td>about 0.8</td>
</tr>
<tr>
<td>Resolution (closed-loop) [μm]</td>
<td>0.1 or lower</td>
<td>0.1 or lower</td>
<td>0.1 or lower</td>
</tr>
<tr>
<td>Straightness (Xy Xz Yx Yz) [μm]</td>
<td>0.1 or lower</td>
<td>0.1 or lower</td>
<td>0.2 or lower</td>
</tr>
<tr>
<td>Positional Repeatability [μm]</td>
<td>0.1 or lower</td>
<td>0.1 or lower</td>
<td>0.1 or lower</td>
</tr>
<tr>
<td>Load Capacity [N]</td>
<td>−</td>
<td>−</td>
<td>−</td>
</tr>
<tr>
<td>Micro-displacement Sensor</td>
<td>Digital sensor</td>
<td>Digital sensor</td>
<td>Digital sensor</td>
</tr>
<tr>
<td>Compatible Adapter</td>
<td>OBL-ADP-**</td>
<td>OBL-ADP-**</td>
<td>OBL-ADP3-**</td>
</tr>
<tr>
<td>Accessories</td>
<td>Cable (2m)</td>
<td>Cable (2m)</td>
<td>Cable (2m), four special lift spacers</td>
</tr>
</tbody>
</table>

Objective Lens Adapters

Adapters to mount the Piezo Actuator for Objective Lens (SFS-OBL, SFAI-OBL) to a variety of microscopes and objectives.

**OBL-ADP-M***

- **A**
  - Microscope side M20.0, M20.0 P=0.706 (W26.0×1/36)
  - 15
- **B**
  - Objective lens side M20.0, M20.0 P=0.706 (W26.0×1/36)
  - 20

**OBL-ADP-M***A

- Microscope side M20.0, M20.0 P=0.706 (W26.0×1/36)
- 15

**OBL-ADP3-M***

- **A**
  - Microscope side M20.0, M20.0 P=0.706 (W26.0×1/36)
  - 20
- **B**
  - Objective lens side M20.0, M20.0 P=0.706 (W26.0×1/36)
  - 21

**SFS-OBL Compatible Adapters**

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Mounting Screw Size [mm]</th>
<th>A [mm]</th>
<th>B [mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>OBL-ADP-M20.32A</td>
<td>Microscope side M20.32</td>
<td>M20.32 P=0.706 (W26.0×1/36)</td>
<td>15</td>
</tr>
</tbody>
</table>

**SFS-OBL**

- **A**
  - Microscope side M20.0, M20.0 P=0.706 (W26.0×1/36)
  - 20
- **B**
  - Objective lens side M20.0, M20.0 P=0.706 (W26.0×1/36)
  - 21

**OBL-ADP-M***

- **A**
  - Microscope side M20.0, M20.0 P=0.706 (W26.0×1/36)
  - 15
- **B**
  - Objective lens side M20.0, M20.0 P=0.706 (W26.0×1/36)
  - 20

**OBL-ADP-M***A

- Microscope side M20.0, M20.0 P=0.706 (W26.0×1/36)
- 15