

## Soleil-Babinet Compensator

A Soleil-Babinet Compensator is a continuously variable zero-order retarder (wave plate) that can be used over a broad spectral range. The variable retardance is achieved by adjusting the position of a long birefringent wedge with respect to a short fixed birefringent wedge. The wedge angle and fast axis orientation is the same for both wedges so that the retardance is uniform across the entire clear aperture of the Soleil-Babinet compensator. The orientation of the fast axis of the wedge is engraved on the housing of the Soleil-Babinet Compensator. A compensator plate is attached to the fixed wedge with its fast axis orthogonal to both the fast axis of the wedges and the propagation direction of the light. When the long birefringent wedge is positioned such that the total thickness of the two stacked wedges is equal to the thickness of the compensator plate, the net retardance of light passing through the Soleil-Babinet

### Features

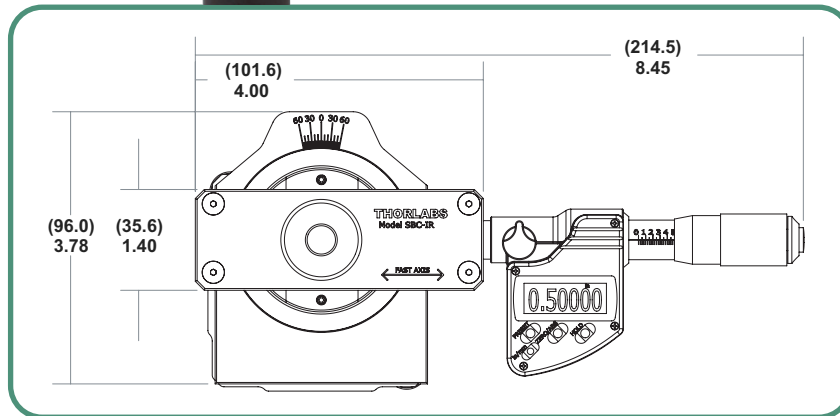
- Precision Retardation Measurements
- Uniform Retardance Over Full Aperture
- Continuously Variable Retardance
- 45° Index Stops



SBC-VIS

### Specifications

- **Wavelength Range:**  
140-400nm (SBC-UV)  
365-800nm (SBC-VIS)  
740-1650nm (SBC-IR)
- **Retardance Adjustment:**  
0-2 $\pi$  (Full-Wave)
- **Clear Aperture:**  
10mm Diameter
- **Beam Deviation:**  
<1arcmin
- **Transmitted Wavefront Error:**  
< $\lambda/4$
- **Surface Quality:**  
40-20 Scratch Dig
- **Digital Readout Resolution:**  
0.001mm
- **Rotation:** 360° Continuous
- **Rotation Division Scale:**  
1° Increments
- **Detent Index Stops:**  
Every 45°



compensator will be zero. The position of the long wedge can then be adjusted with a precision micrometer in order to create a retardance of up to  $2\pi$  in the transmitted beam of light. The micrometer has a digital readout with a resolution of 0.001mm for ease of use. The fast axis orientation of the Soleil-Babinet compensator can be continually adjusted since the entire assembly is mounted on a rotation stage. The rotation stage has a Vernier scale for increased resolution. In addition, the rotational mount has detent positions in 45° increments so that the fast axis can be efficiently switched between parallel and 45° orientations. Finally, the entire assembly can be tipped or tilted with two fine pitched adjustment screws and can be mounted on a TR series post via one of six counterbored #8-32 (M4) holes in the kinematic mount.

SBC-COMM is an accessories package that allows the digital micrometer to be connected to a computer via an RS-232 communications port. In addition to the cables and connectors, SBC-COMM includes a CD with micrometer LabVIEW drivers and a stand-alone micrometer program. Once the Soleil-Babinet compensator is calibrated at a single wavelength, the software can output the micrometer position required for any retardance at any wavelength within the operating range.

The calibration procedure, which is necessary for calculating the position of the micrometer for a given retardance at a specified wavelength (whether the SBC-COMM packaged is used or not) is explained in the manual. The procedure is easy to complete but does require additional equipment, since the Soleil-Babinet compensator must be placed between two crossed polarizers and illuminated with coherent monochromatic light at a known wavelength. The manual is available at [www.thorlabs.com](http://www.thorlabs.com).

ITEM#	\$	£	€	RMB	SPECTRAL RANGE	DESCRIPTION
SBC-UV	\$ 3,200.00	£ 2,016.00	€ 2,976.00	¥ 30,560.00	140-400nm	Soleil-Babinet Compensator
SBC-VIS	\$ 2,750.00	£ 1,732.50	€ 2,557.50	¥ 26,262.50	365-800nm	Soleil-Babinet Compensator
SBC-IR	\$ 2,750.00	£ 1,732.50	€ 2,557.50	¥ 26,262.50	740-1650nm	Soleil-Babinet Compensator
SBC-COMM	\$ 670.00	£ 422.10	€ 623.10	¥ 6,398.50	-	RS-232 Interface & LabView Drivers

- Optical Systems
- Free Space Isolators
- E-O Devices
- Spherical Singlets
- Multi-Element Lenses
- Cylindrical Lenses
- Aspheric Lenses
- Mirrors
- Diffusers & Lens Arrays
- Windows
- Prisms
- Gratings
- Polarization Optics
- Beamsplitters
- Filters & Attenuators
- Gas Cells