

UV-Vis Polarizers – Manual and Automated Versions



FEATURES OF THE UV-VIS POLARIZERS

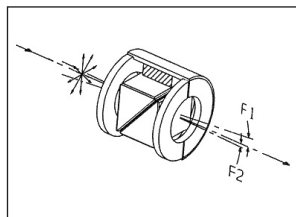
- Glan-Taylor and UV Glan-Thompson designs
- High grade calcite
- High extinction ratio
- Manual versions – 1 degree settable scaling
- Automated version – 0.1 degree scaling resolution
- Fits in a standard 2 inch x 3 inch mount

PIKE Technologies offers Glan-Taylor and Glan-Thompson UV-Vis polarizers. These take advantage of the birefringent properties of UV-quality calcite. An air interface is assembled between two right angle calcite prisms in the Glan-Taylor polarizer whereas a UV-transparent cement separates the calcite prisms in the Glan-Thompson polarizer. In both styles, the polarized extraordinary ray passes through both prisms and the ordinary ray is internally reflected and absorbed. The spectral range of these polarizers is 250 nm – 2300 nm. Due to the natural origin of calcite the achievable minimum wavelength fluctuates from polarizer to polarizer. However, at 250 nm the transmission throughput is no less than 25%.

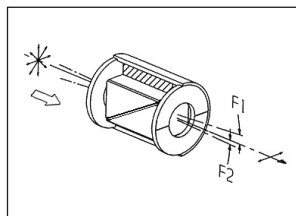
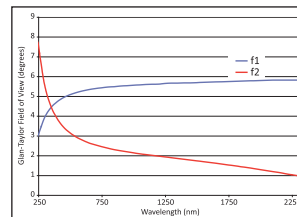
Wavelength (nm)	250	300	400	> 500
Minimum Transmission (%)	25	40	65	85

Each polarizer type has a different field of view where the UV-Vis beam is polarized. The UV Glan-Thompson field of view is wider compared to the Glan-Taylor as shown in the figure.

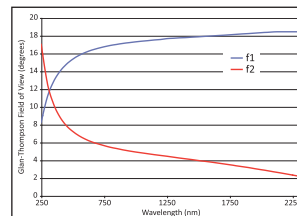
Enhanced angular resolution of 0.1° is gained with the automated version of the PIKE UV-Vis polarizer. This automated feature is advantageous where highly precise angular settings are required and for increasing the measurement simplicity for determining the polarized orientation of a sample. By evaluating the transmission or reflectance of a sample as a function of the automated polarizer angle at a given wavelength, parallel and perpendicular orientation of the sample relative to the polarizer degree setting may be determined. The automated version includes integrated data collection with some commercial UV-Vis spectrophotometer software packages.



Glan-Taylor field of view



UV Glan-Thompson field of view



The sample material and sampling configuration dictate the need for a UV-Vis polarizer. Typical materials that may require a polarizer during sampling are often crystals, films, paints, beam splitters, coated glass, and anti-reflective, and anti-glare coatings. Additionally, we recommend using a polarizer for specular reflectance sampling at an angle of incidence greater than 15 degrees where the reflectivity becomes polarization dependent.

UV-VIS POLARIZERS SPECIFICATIONS

	Glan-Taylor	UV Glan-Thompson
Material	Calcite	Calcite
Spectral Range	250 – 2300 nm	250 – 2300 nm
Clear Aperture	12 mm	14 mm
Extinction Ratio	5×10^{-5}	1×10^{-4}
Manual Polarizer Dimensions		
Width	29 mm	49 mm
Depth	50 mm	50 mm
Height	146 mm	146 mm
Automated Polarizer Dimensions		
Width	56 mm	56 mm
Depth	50 mm	50 mm
Height	146 mm	146 mm
Angular Resolution, Manual	1°	1°
Angular Resolution, Automated	0.1°	0.1°

ORDERING INFORMATION

UV-Vis Polarizers Accessories

PART NUMBER	DESCRIPTION
198-1623	Manual Glan-Taylor
198-1624	Manual UV Glan-Thompson
198-1625	Automated Glan-Taylor
198-1626	Automated UV Glan-Thompson

Note: Polarizers may not fit in the sample compartments of some smaller spectrophotometers. Please consult PIKE Technologies before placing an order.