

Photoelastic Modulators (PEMs) offer a highly sensitive method for generating polarization states for Magneto-Optical Kerr Effect (MOKE) measurements in the DUV, visible, and IR spectrums. PEMs can also be used very effectively to analyze the polarization states of light after it has reflected off of the sample. The correct selection of detectors, polarizers, PEM options, and demodulators is critical to detecting the small levels of polarization change that can occur. Hinds Instruments can help you assemble the necessary research grade equipment that will optimize your results.

MOKE Solution Packages can include:

- Magnetic Field Compatible PEM
- Photodiode or APD Detector
- Lock-in Amplifier or Waveform capture card demodulation
- Laser or other light source
- Polarizers and mounts
- Anti-reflection coatings
- Magnet Systems

PHOTOELASTIC MODULATORS

OVERVIEW OF FEATURES

- Highest available sensitivity
- Simultaneous measurement of Kerr ellipticity and Kerr rotation using 1f and 2f reference signals
- High repeatability
- Digital display of retardation and wavelength in user-selectable units
- Internal RS-232 interface, allowing computer control and monitoring of all PEM functions
- A reputation for stable, trouble-free performance
- CE approval

OPTICAL HEAD FEATURES

- Common isotropic optical material, typically fused silica
- Wide useful aperture (1.5 - 3.0 cm for standard models)
- Wide acceptance angle ($\pm 25^\circ$)
- High retardation performance
- High quality and low residual birefringence optics



PHOTO DIODE DETECTORS

HINDS' DETECTION FEATURES INCLUDE:



- Frequency response of DC to several times the operating frequency of the PEM being used, 450kHz - 1 MHz depending on the model
- The DET maintains a constant bandwidth throughout all gain settings.
- Gain Selection, 10 positions
- The DET exhibits a constant DC offset throughout all gain settings.
- Offset Voltage (all gain settings), $< \pm 5\text{mV}$
- Hi Z load from 0-10V and a 50Ω load from 0-5V

SIGNALOC DUAL PHASE LOCK-IN AMPLIFIER

The Hinds Instruments Lock-in Amplifier, Signaloc 2100, offers an easy to use, research grade instrument for high sensitivity demodulation of the Photoelastic Modulator (PEM). The Signaloc LIA can demodulate the 1f signal from the PEM for Kerr ellipticity measurements and the 2f signal for Kerr rotation measurements. To do both measurements simultaneously two Signalocs are required. Signaloc offers both an RS232 control via the standard Signaloc software or an included Labview driver for integration into your system.



LASERS AND OTHER LIGHT SOURCES

Hinds can procure light sources for you. We stock 2mW HeNe lasers and will order other light sources per your specification.

POLARIZERS

We recommend good quality linear polarizers, preferably Glan Thompson or Polarcor™. Hinds can add these to your quote as well.

MAGNETS

We work with GMW to provide the best electromagnets for your application. If you do not already own a magnet system we can help you to determine the best solution.

