

# LEYSOP LTD

Manufacturers and suppliers of electro-optic components

## Temperature Controlled Pockels Cell



For many years, Leysop have been providing custom and bespoke electro-optic systems for special applications. One such system is that provided for Raman Optical Activity measurements as made by Barron and Hecht (see: <http://www.chem.gla.ac.uk/staff/laurence/research/ROAHome.htm> for a description of the application and list of useful references).

Key to this arrangement is the requirement for switching between ultra-precise left and right handed circular polarization states and for the highest levels of precision a special Pockels cell is required. We developed a KD\*P Pockels cell with a linearized electric field to give a retardation uniformity across the 8mm clear aperture which is far higher than usually available. In addition, the Pockels cell is housed in an oven assembly with PT100 sensing element, driven by a PID temperature controller which maintains the temperature of the KD\*P crystal to within better than 0.1°C from the set temperature. This means that when switched to a given set voltage, the device will always provide the required circular polarization state.



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The final piece of the system is the series 5000 high voltage amplifier. This has two features which render it the perfect choice for this application. Taking in a linear polarization, the modulator must be driven by an alternating polarity voltage to give sequentially left, then right-handed circular polarization. This requires precision control of the applied voltages which the amplifier achieves by using user adjustable voltage clipping controls on the -ve and +ve excursions of the waveform. Furthermore, the amplifier has variable slew rate controls built in to adjust the transition times to minimize the generation of piezo-electric resonances in the Pockels cell by tailoring the frequency content of the driving square wave.

This is just one of the many examples where Leysop have provided equipment to researchers which meets their needs exactly. If your application requires such a system, or something different perhaps such as a custom ultra-fast pulse slicing system, please give us a call and we would be happy to discuss your requirements.