

LEYSOP LTD

Manufacturers and suppliers of electro-optic components

Two Crystal Longitudinal Mode Pockels Cells



Half voltage of normal
Longitudinal electric field
KD*P design

Dry or fluid filled

High power handling

High extinction ratio
>1000:1

Low optical loss

Ø35 and Ø50mm packages

Low wave-front distortion

Unlike transverse mode Pockels cells where the half wave voltage is dependent upon the ratio of length to width (between electrodes), the half wave voltage for a longitudinal field cell is fixed for a given wavelength and varies only weakly with cell geometry. This results in very high voltage operation for most applications (e.g. 6kV for 1064nm). One solution obviously is to use transverse mode devices and for some applications this is appropriate. However, for many situations, only a longitudinal field device will provide the right optical performance (especially where higher extinction ratios are desired). The solution then is to combine two Pockels cells, each providing half the total rotation when driven from a common voltage source. The logical conclusion of this approach is to combine both crystals in one package. This reduces losses, overall size,

component count and alignment and set-up time (which then becomes the job of the manufacturer!). The result is a composite device which halves the required drive voltage at the expense of approximately twice the load capacitance.

As with all our other longitudinal Pockels cells, these can be supplied in one, two or four terminal configurations (as seen in the above picture) and may be supplied either with index matching fluid filling the space between the crystals and the windows (preferred) or dry, with or without anti-reflection coatings on the crystals. Tilted off windows and/or wedged crystals may be specified (there may be a small charge for the latter) if required to control interference effects caused by multiple reflections.

www.leysop.com

LEYSOP LTD

We can produce two crystal Pockels cells in any aperture size up to 20mm, although 8mm, 10mm and 12mm are the most common. We even now manufacture two crystal devices in our compact Pockels cell range. We also manufacture our ultra fast Pockels cell (UPC) in both single and double crystal versions. Please contact us if you have any special requirements not met by what you have seen here.

Example Specifications

Parameter	Performance
Aperture	8mm
Wavelength Range	0.3 – 1.2 μ m
Half-wave Voltage @ 1.06 μ m	3.0kV
Maximum Voltage	5kV
Optical Rise Time	< 0.25ns
Contrast Ratio @ 1.06 μ m	>600:1
Capacitance Unterminated	30pf
Damage Threshold Q-switched	600MW/cm ²
Insertion Loss	7%
Terminations	H.V.BNC
Finish	Black anodised
Physical Dimensions	50mm dia. 72mm long