



High Repetition Rate Q-switch Driver

The PCD-3000 from Leysop is a Q-Switch Pockels Cell Driver that has an output voltage amplitude of 2000 V - 3000 V. It has a pulse duration of 200 ns and repetition rate of up to 100 kHz. This Pockels cell driver has a rise time below 5 ns and high-tension current of over 25 mA. It is available in a package that measures 150 (H) mm x 250 (W) mm x 330 (D) mm and is ideal for q-switching applications.



Fast rise time:

<5ns @3kV, ~3ns at 2kV

Repetition rate up to
100kHz

Pulse length ~200ns, ideal
for Q-switching

Output short-circuit
protected

Internal rate generator

One of the most difficult aspects in dealing with electro-optic devices is the problem of working with high voltages. The majority of electro-optic devices present a capacitive load to the driver which further compounds the problem of finding a suitable driver. However, the relatively low voltage requirements of the transverse field RTP Pockels cell and similar types allow us to switch the high voltage at high repetition rates with acceptable power consumption at the driver.

We have developed the driver with the application of continuously pumped sources in mind (rather than flash-lamp pumped for example). For this reason we have not incorporated any facility for varying the delay from the input trigger pulse and the Q-switch output pulse. We have however provided full protection facilities based on internal current limiting to ensure that the demands on the internal HT power supply do not exceed its capability. There is also an internal rate generator for those applications where synchronization to external events is not required and free running use is acceptable.

Safety is of course also paramount and the high voltage output is provided by a safe high voltage (SHV) form of the BNC connector and a matching lead is supplied to connect to the Pockels cell terminals. The HT voltage may be set precisely from the front panel to enable the unit to be set for optimum performance for the user's operating wavelength and Pockels cell requirements. Available in two options, 2kV to 100kHz or 3kV to 50kHz.

Product Specifications

Parameter	Value
Repetition Rate	0 to 100kHz in five decade steps by internal or external generator for 2kV driver, to 50kHz for 3kV driver.
Output Voltage	2,000V and 3,000V options available, adjustable with visual display
Output Pulse	The standard system generates a positive going step function above zero. The generator can also be supplied giving a negative going step from the set HT level down to zero for quarter wave switching
External Trigger In	+3.0 to 10.0V min. 100ns typical into 50Ω
Synchronization Output	TTL approx. 80ns after trigger
Overload Protection	<p>Repetition rates above 50/100kHz HT Current over maximum Output stage fault overload</p> <p>Protection occurs by automatic removal of the HT supply which can be re-instated by the reset switch</p>
Power Input	Universal 90 – 265V a.c. 47 – 440Hz via fused IEC inlet
Dimensions	150 (h) x 250(w) x 330(d) (mm) Mass: 6kg

Specifications for guidance only, subject to modification without notice.