

# HVR-DRIVE™ POCKELS CELL DRIVER

Driver for BBO Pockels cells for laser pulse selection

## PRELIMINARY PRODUCT DATA SHEET

The HVR-Drive is designed to switch BBO Pockels cells used for pulse management in high repetition rate ultrafast laser regenerative amplifiers.

The HVR-Drive can drive BBO Pockels cells at  $1/4\lambda$  or  $1/2\lambda$  up to 7.5 kV and up to 100 kHz. The driver produces a “top-hat” waveform with fast rising and falling edges.

Heat load and space requirements are at a minimum due to the use of external power supplies and control electronics.

The HVR-Drive measures 136.5 x 178 x 70 mm (5.375 x 7.0 x 2.8”) with the standard heat sink for convection cooling. It can also be air-cooled or water-cooled for higher repetition rates.

We can supply the driver in different form factors for high volume applications. On/Off trigger inputs can be standard TTL signals or optional optical trigger inputs can be supplied.

Gooch & Housego can work with you to customize the driver for your specific application. Options such as remote monitoring, remote shutdown and over-temperature indicators can be supplied.



### Key Features

- 0 - 100 kHz repetition rate pulses
- 1.0 - 7.5 kV output voltage
- 10 - 20 ns rise and fall times
- 200 ns - 2  $\mu$ s pulse widths
- Bipolar balanced output

### Key Benefits

- Compact footprint
- Reduced heat load
- Easy integration
- Flexible design

### Applications

- Metal cutting
- Welding
- Glass cutting
- Sapphire cutting
- Spectroscopy

PRODUCT CODE

Preliminary data sheet ref: XXXXX / Revision No. X

As part of our policy of continuous product improvement, we reserve the right to change specifications at any time.

26 July 2016

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## HVR-Drive Specifications

Parameter	Conditions	Min	Max	Units
Power requirements				
Low voltage supply		15.0	18.0	VDC
Low voltage supply	100 kHz rep rate	120	200	mA
2 x high voltage supplies	For 7.5kV out, external $\pm 1875$ VDC required	10	200	mA
Trigger				
ON/OFF trigger voltage	Normally 5V, TTL	4	15	V
Trigger to output delay	5V trigger		60	nS
Pulse width		200	2000	nS
Jitter, trigger to output	2 nS trigger rise time		50	pS RMS
Output pulse				
Repetition rate	7.5kV, 10pF, water cooled	0	100	kHz
Pulse voltage		1.0	7.5	kV
Rise/fall times		10	20	nS
Environmental				
Operating ambient		0	50	°C

### NOTES

Two external high voltage power supplies are required; one positive output, one negative output. For example, to achieve 6kV output you will need  $\pm 1500$  VDC input.

High voltage current requirements are determined by the pulse width and repetition rate.

Rise / Fall times vary with output voltage; higher voltages produce longer rise / fall times.

Convection cooled, the maximum rep rate at 7.5 kV is 25 kHz.

### CAUTIONS

Do not connect the outputs to ground or damage to the driver will occur.

The low voltage supply must be on before applying the high voltage inputs.

For further information

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HVR-DRIVE™