

HVR-SYSTEM™

Integrated Driver and Control System for Pockels Cells

PRODUCT DATASHEET

The HVR-System™ from Gooch & Housego is a turn-key integrated driver and control system to switch Pockels cells used for pulse management in high repetition rate ultrafast laser regenerative amplifiers.

The HVR-System™ can drive Pockels cells at $1/4 \lambda$ or $1/2 \lambda$ up to 7.5 kV and up to 200 kHz. The driver produces a top-hat waveform with fast rising and falling edges. The HVR-System™ operates from any 88–264 VAC, 50–60 Hz input. It requires only an AC source and a TTL trigger signal to operate.

A built-in digital voltmeter allows you to set the output voltage before applying it to the driver and separate high voltage enable/disable buttons are standard for added safety. A separate trigger on/off switch provides easy pulse control which also disables the high voltage at the rear panel output connectors.

The HVR-System™ comes in a standard 483 mm (19") rack mount enclosure which can also be used as a benchtop unit. It comes with forced air cooling for operation up to 50 kHz or water-cooled for higher repetition rates.

We can work with you to customize the system for your specific application. Options such as optical triggering, remote control and over-temperature indicators can be supplied.



Key Features

- 0–50 kHz repetition rate (air cooled)
- 0–200 kHz repetition rate (water cooled)
- 1.0–7.5 kV output voltage
- 10–15 ns rise and fall times
- 250 ns–3 μ s pulse widths
- Bipolar balanced output
- Standard 483 mm (19") rack mounting
- Dimensions (wdh): 432x381 x95.25 mm (17x15x3.75")

Key Benefits

- Turn-key driver solution
- Built in digital voltmeter
- Easy integration
- Flexible design

Applications

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

Specifications

Parameter	Conditions	Min	Max	Units
POWER REQUIREMENTS				
Input voltage		88	264	VAC
Input frequency		50	60	Hz
TRIGGER				
Voltage	Normally 5 V, 50 Ω input impedance	4	6	V
Trigger to output delay	5 V trigger		100	ns
Pulse width	(subject to 20% duty cycle maximum)	250	3000	ns
OUTPUT PULSE				
Max pulse repetition rate	Air cooled		50	kHz
	Water cooled		200	kHz
Max duty cycle	Ratio of pulse width to period (1/frequency)		20	%
Pulse amplitude		1.0	7.5	kV
Rise/fall times	6–10 pF output capacitance ¹	10	15	ns
ENVIRONMENTAL				
Operating ambient		0	40	°C

Standard Output Configurations

Amplitude	Maximum rep rate	Model number	Cooling method
0–6 kV	10 kHz	HVR-60010	Air
0–6 kV	30 kHz	HVR-60030	Air
0–6 kV	150 kHz	HVR-60150	Water
0–7.5 kV	5 kHz	HVR-75005	Air
0–7.5 kV	10 kHz (0–6kV @ 20 kHz)	HVR-75010	Air
0–7.5 kV	100 kHz (0–5 kV @ 200 kHz)	HVR-75100	Water

¹ Unit has been tested with up to a 100 pF load and demonstrated rise/fall times less than 40 ns. Custom system configurations available. Please contact Gooch & Housego for more information.

For further information

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