



QUANTUM TECHNOLOGY, INC.

108 Commerce St., Suite 102, Lake Mary, Florida, 32746-6212, USA
FAX 407-333-9352 PHONE 407-333-9348 TOLL FREE 800-232-4713
EMAIL: staff@quantumtech.com <http://www.QuantumTech.com>

MODEL HVP-5I-DIFF FAST DRIVER DATA SHEET 739

MODEL HVP-5I-DIFF PULSE PICKER /REGEN FAST EO DRIVER SYSTEM

FEATURES

- Fast Rise and Fall times
- Variable pulse width
- Rep rate to 5 KHz-200KHz

The **MODEL HVP-5I-DIFF** driver system is used in many applications requiring the generation of high speed optical pulses, production of nano-second wide optical pulses and single pulse extraction of mode locked (ML) laser pulses. This driver is extremely useful in regenerative amplifier laser set-ups where single or multiple laser pulses are seeded in the laser cavity. The resultant amplified pulses are switched out after a build-up time of several hundred nanoseconds.

The Model HVP-5I-DIFF driver system utilizes differential switching high voltage FETs which drive very fast response time EO Pockels cells such as Quantum Technology's **QC** series **KD*P** Pockels cell, **QS** series **BBO** Pockels cells or **RT** series **RTP** Pockels Cells. The waveform thus produced, provides optical pulses with symmetrical nanosecond optical rise times. The unique circuitry employed in this driver, allows the HV bias levels to be easily varied and set unlike avalanche circuits which only operate safely, over a very small voltage range and cause the timing to be readjusted every time the high voltage is adjusted. This driver is excellent for use with tunable lasers such as the Ti-Sapphire laser due to the inherent ease of operation.

The extremely fast response time (7 nanosec) of the Model HVP-5I-DIFF driver system makes it very useful in the selection and extraction of a single mode locked pulse or a group of pulses from the laser output pulse train. The driver system can pick out pulses from pulsed or CW mode locked lasers and pulsed or CW Q-switched mode locked lasers. In particular, when used with the ultrafast Photo-diode Discriminator Amplifier module, the Model HVP-5I-DIFF driver system finds usefulness in passively Q-switched and mode-locked lasers where only the optical pulse train is used to select the wanted pulse.

The Model HVP-5I-DIFF driver system is completely modular in construction and belongs to Quantum's 40SE family of plug-in modules. The units are inter-changeable, up-gradeable and easily replaceable in the field to provide quick turn-around service and to ensure that the latest design innovations are employed. This, in turn, allows the user to select the required options and benefit from increased future functions and performance.

MODEL HVP-5I-DIFF-9 DRIVER SYSTEM COMPONENTS:

- HVPS-5002:** 5 KV HV power supply standard and digital meter system readout, may be upgraded to higher voltage or current for higher rep rates
- DD2:** Divider Delay unit for control and selection of pulses for injection seeding ML pulse extraction (included as standard), with internal clock Delay unit 0-10 ms in 25 ns / step for cavity dumping and pulse width control
- Starfire-9DR** 9 KV HV high speed switch module
- Starfire-5DRM** 5 KV HV high speed switch module (optional HVP-5I-DIFF-5)
- Starfire-3DRM** 3 KV HV power supply (optional)

SPECIFICATION

Pulse selection rate	single shot, burst to 1.5 KHz, 3KHz optional
Gate Pulse width range	7 nsec to 3000 nsec
Optical pulse rise and fall times	7 nsec
Output voltage range	2-9 KV standard
System Jitter	<200 psec
Trigger input impedance	50 ohms