

FastPulse Technology, Inc.

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SERIES 5055SC-A Q-Switch Driver Module

FEATURES

- Self-Contained HV Power Supply
- Rise Time ~ 3 nanoseconds
- EMI/RFI Shielded Enclosure
- Repetition Rates to 2000 pps (2kHz)
- High Reliability & Small Footprint
- Cell held at 0V potential.
- OEM Variations are Available

5055SC-A Q-switch Driver Modules are intended for driving Pockels cells in q-switch applications. The driver incorporates a self-contained high voltage power supply and only requires +24 Volts DC input. High voltage is adjusted to the required level by a front panel knob. Triggering is from any conventional TTL pulse sources. Repetition rates from single shot to 2kHz are attained with the standard HV Pulse Module. The 5055SC-A incorporates an EMI/RFI shielded enclosure with HV insulated output wires terminated with 2mm pin terminals.

The module can provide three modes of operation: Standard Balanced Output. Both output leads are set at the Quarter or Half Wave retardation voltage of the Pockels cell and thus the cell operates with no static DC high voltage applied. The HV output pulse switches from net zero Volts across the cell terminals to the adjustable, preset operating HV level. This zero voltage feature prevents cumulative ion migration damage which occurs in KD*P crystals with application of continuous DC voltage. Mode 2 & 3 operation are described in the manual.

Q-switch drivers have a single switch circuit design and provide a fast leading edge or rise time. In q-switch applications QWV (Quarter wave voltage) is applied to a Pockels cell when the driver is triggered. In some applications the driver is used at HWV (Half Wave Voltage) external cavity to shorten pulses of laser by clipping the leading or falling edge of the long pulse. Applications requiring >5KV require our 5056SC-A-8 or 5048SC drivers which provide higher max voltage. The HV pulse width is nominally 2-3 micro seconds and the falling edge relatively slow nominally 50 ms depending on

the driver model. This is in contrast to a Pulse picker with 2 switches ON & OFF that have fast rise and fall times and the two trigger inputs allow for PW adjustment.

OPTIONS:

- HV adjust locking knob or VC (0-5V) TTL
- HV lead termination #4 ring terminals.
- Mode 2, Mode 3 dedicated models.
- 5055SC-B OEM hard potted smaller design.
- Slower rise time (switching speed) up to 25ns
- Longer PW "On time" up to 50us



Model 5055SC-A Q-Switch Driver



Model 5055SC-A and trigger cable shown with optional Pockels cell mounted on Gimbal mount MG- CL38 and +24V supply MW4024F.

5055SC-A Optional ACCESSORIES:

MW4024F: AC to +24VDC miniature converter with BNC termination mates to the driver is available for supplying the required +24 VDC, 1.6A.

MG-CL38 Gimbal tilt mount for Pockels cells with 35mm diameter housings such as our Series Q1059, 1150 and 1147 models and many industry standard cells..

FastPulse Technology family of Q-switch Driver Modules are compatible with KD*P, RTP, and BBO Q-switches.

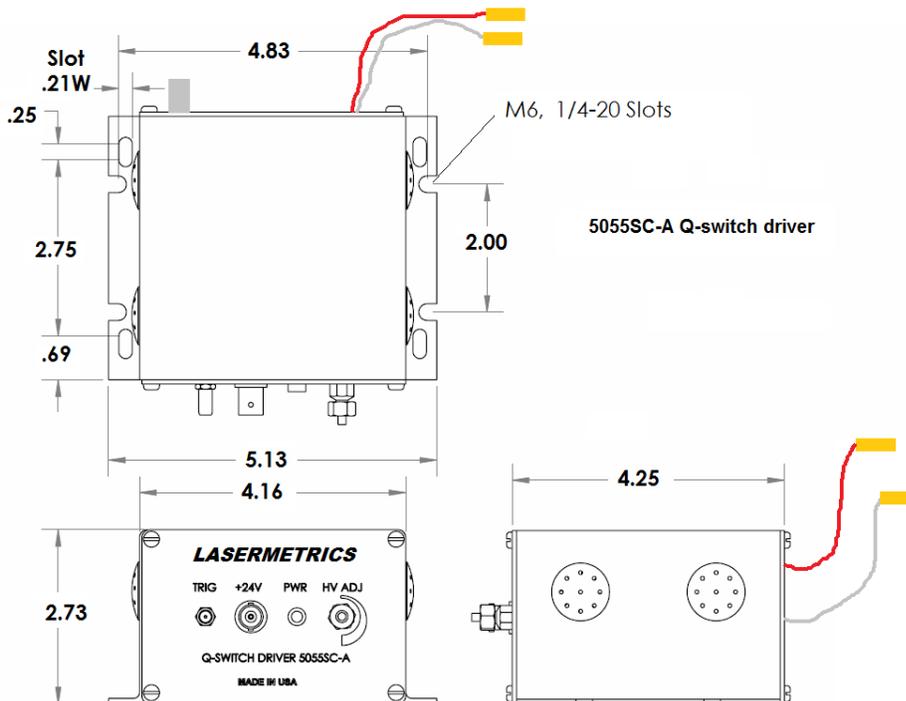
KD*P Pockels cells are the most common type offering lowest cost and largest aperture options. (Series Q1059, 1145, 1148, CF1043 and 1144) Our most popular models include 8mm up to 30mm apertures.

RTP (Rubidium Titanyl Phosphate) Pockels cells (Series 1147) are recommended for operation at high repetition rates and long pulse widths providing freedom from piezoelectric ringing. RTP is optimal for longer wavelengths 600nm-2200nm due to its low voltage requirements and provides provide high transmittance, nominally 98.5%, in thi

BBO (Beta Barium Borate) Pockels cells (Series 1150) are most useful in the UV--Visible wavelength range but can be a good choice for 1 micron lasers. BBO requires relatively high drive voltages. Reduced voltage cells are available which utilize two crystals: optically in series and electrically in parallel models. BBO cells may be used up to 50-75 Watt average power level in certain applications.

5055SC-A Q-Switch Driver Module -- Specifications

- HV Switching Speed, Rise Time (<=8pF cell).....<4 ns (10%-90%)
- High Voltage Range (Pulsed).....700 to 5000 volts
- Output Pulse Repetition Rate.....One Shot to 2000 pps (2kHz)
- Output Pulse Width, nominal.....~3 microseconds (FWHM ~18ms)
- Output Jitter, Trigger Input to HV Output.....<2 nanoseconds
- Input Trigger Level: Pulse, (SMA Connector).....TTL Levels, (5 Volts max.)
(Trigger cable SMA/BNC coaxial 1 meter length included with driver.)
- Input - Output Intrinsic Time Delay.....<50 nanoseconds
- DC Power Input, (BNC Connector).....+24-28 volts DC, >17 Watts



Specifications may change to incorporate latest improvement \5055C-A 24 AUG 2017