

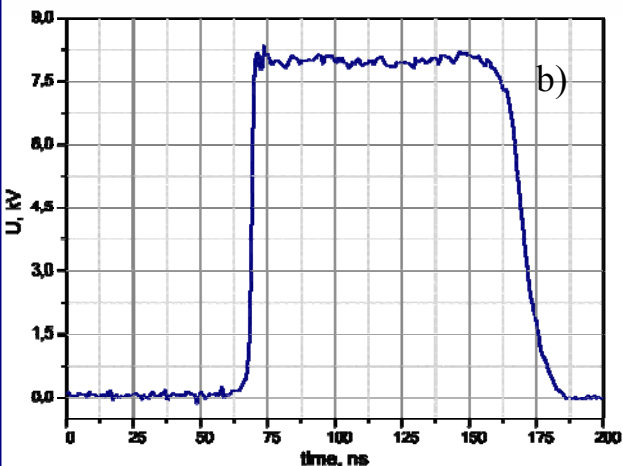
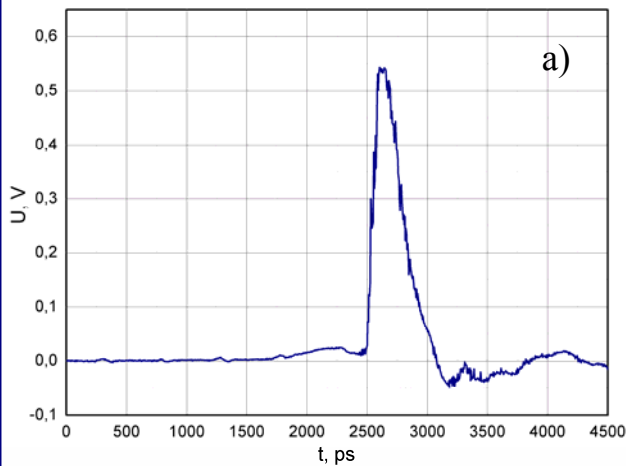
SUB - NANOSECOND PULSE GENERATOR FOR ELECTRO - OPTICS



FID GmbH



High voltage pulse generator.



Waveforms acquired with high voltage attenuator:

- | | |
|----------------------------------|--------|
| a) Pulse width at 50% level: | 300 ps |
| Rise time from 10% to 90% level: | 100 ps |
| b) Pulse width at 50% level: | 100 ns |

GENERAL DESCRIPTION:

An all-solid-state, high voltage, low impedance pulse generator can be integrated with an electro-optical modulator resulting in an electro-optical system capable of switch times faster than 100 picoseconds.

The generator and the modulator can be connected with a coaxial cable, so that generator is separated from the optical assembly. If necessary, several modulators can be driven by the same pulse generator. These units are custom built and can operate at repetition rates from single shots to 10 kHz.

Pulse duration, voltage and repetition rate are limited by average power delivered to the load. Optical switch times depend on modulator design. Discuss your requirements with NISP Research Projects, LLC. We can configure an integrated electro-optical system optimized specifically for your application.

ADVANTAGES:

- Pulse durations from 150 picoseconds.
- Rise times as fast as 80 picoseconds.
- Half-wave voltage operation is possible.
- Several modulators can be driven by the same generator to reduce costs and ensure jitter-free performance.
- Short duration of high voltage pulses reduces safety hazards and chances of electrical arcing.
- Very long lifetime, low jitter and excellent pulse-to-pulse repeatability due to solid-state design.

APPLICATIONS:

- Picking or slicing of laser pulses with 150 ps time resolution.
- Optical contrast improvement at sub-nanosecond time scale.
- Pulse ejection from optical regenerative amplifiers.
- Formation of optical pulses with 100 ps fronts.
- Time-gated optical detection.

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PULSE GENERATOR SPECIFICATIONS:



MECHANICAL:

Mechanical dimensions: 300x200x120 mm
Rack-mounted versions are available upon request.

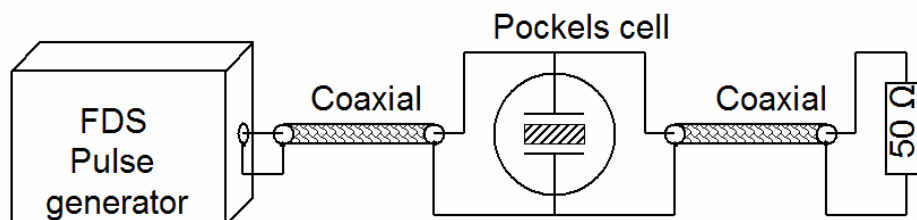
ELECTRICAL:

•Input voltage:	110/220 VAC, 50/60 Hz
•Trigger:	internal: variable 5 – 100 Hz external: 5-10 V / 100 ns / 10-20 ns rise time
•Output pulse voltage:	1 - 10 kV
•Output pulse duration, FWHM:	150 ps – 1 μ s
Rise time (10/90 %):	80 ps – 2 ns
Fall time (90/10 %):	250 ps – 2 ns
•Output pulse jitter	< 20 ps
•Internal generator delay:	200 ns after trigger
•Electrical impedance:	50-75 Ω

OPTICAL MODULATOR SPECIFICATIONS:

To maintain fast switch time and high optical contrast, electrical impedances of the pulse generator and the modulator should be matched. Variety of 50 Ω modulators can be used:

TYPICAL CONNECTION DIAGRAM:



High frequency high voltage 50 Ω terminator should terminate the line for proper operation.

Contact NISP Research Projects, LLC for customization options and detailed information.

This document is provided for information purposes only. Specifications are subject to change without notice.

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