Laser Diode Driver
For precision pulse shaping
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Laser diode driver to generate any pulse shape with nanosecond pulse duration. It is a multifunctional unit with integrated AWG [Arbitrary Waveform Generator], TEC controller & multiple pulse delay generators for signal synchronization.

Key features:
- Direct modulation of ns laser pulses with any shape
- 0 to 1.6 A output current with 16 bit/48 dB/30 μA resolution
- Integrated pre-configured mounting sockets for type 1 butterfly laser diode (type 2 on request)
- User set pulse shape from 500 ps to 8 μs with 0 - 20 MHz repetition rate
- Integrated TEC controller with over temperature protection
- Special mode for laser diode "gain switch peak" suppression
- Built-in pulse AWG with internal or remote triggering
- 3 integrated Pulse Delay Generators
- USB interface with intuitive GUI software
- Available in two versions direct or external modulations

Laser diode pulse shaping (direct modulation)
- Peak current level: 0 - 1.6 A
- Pulse shaping duration (4000 step max): 0.5 ns - 8 μs
- Pulse shaping timing resolution: 500 ps
- Jitter (external/internal trigger): ± 2.5 ns / < 100 ps
- Pulse shaping current resolution: 30 μA
- Jitter (internal trigger/external trigger): < 100 ps / < 1.5 ns rms

Laser diode pulse shaping (external modulation)
- Original pulse peak current level: 0 - 3.5 A
- Original pulse timing resolution (delay/pulse-width): 1 ns
- EOM/AOM* pulse shaping duration: 0.5 ns - 8 μs
- EOM/AOM* pulse shaping timing resolution: 500 ps
- Output voltage (factory configuration): 1 V (50 Ohm)/5 V (High-Z)

Electrical synchronization (Pulse Delay Generator) outputs
- Number of outputs: 3
- Synchronization signals duration: 10⁹ ns
- Synchronization signals resolution: 1 ns
- Output voltage: 3.3 V (50 Ohm)

General
- Compatibilities & Libraries: Win XP/7/10 - Hexa - DLLs - LabVIEW - Python
- Interface: USB or UART
- Power supply: 24 V / 4 A (110 V/220 V adapter included)
GUI control software

External modulation
Version 1

Direct modulation
Version 2

(1) Electro Optic Modulator / Acousto Optic Modulator

Mechanical

External Shaper
Main Shaper
After Shaper

Diode 1.60 V
Diode 1.20 V
Diode 0.80 V
Diode 0.40 V

0.00 V
10.00 ns
20.00 ns
30.00 ns

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Photos: ALPhANOV - Version 01/20
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