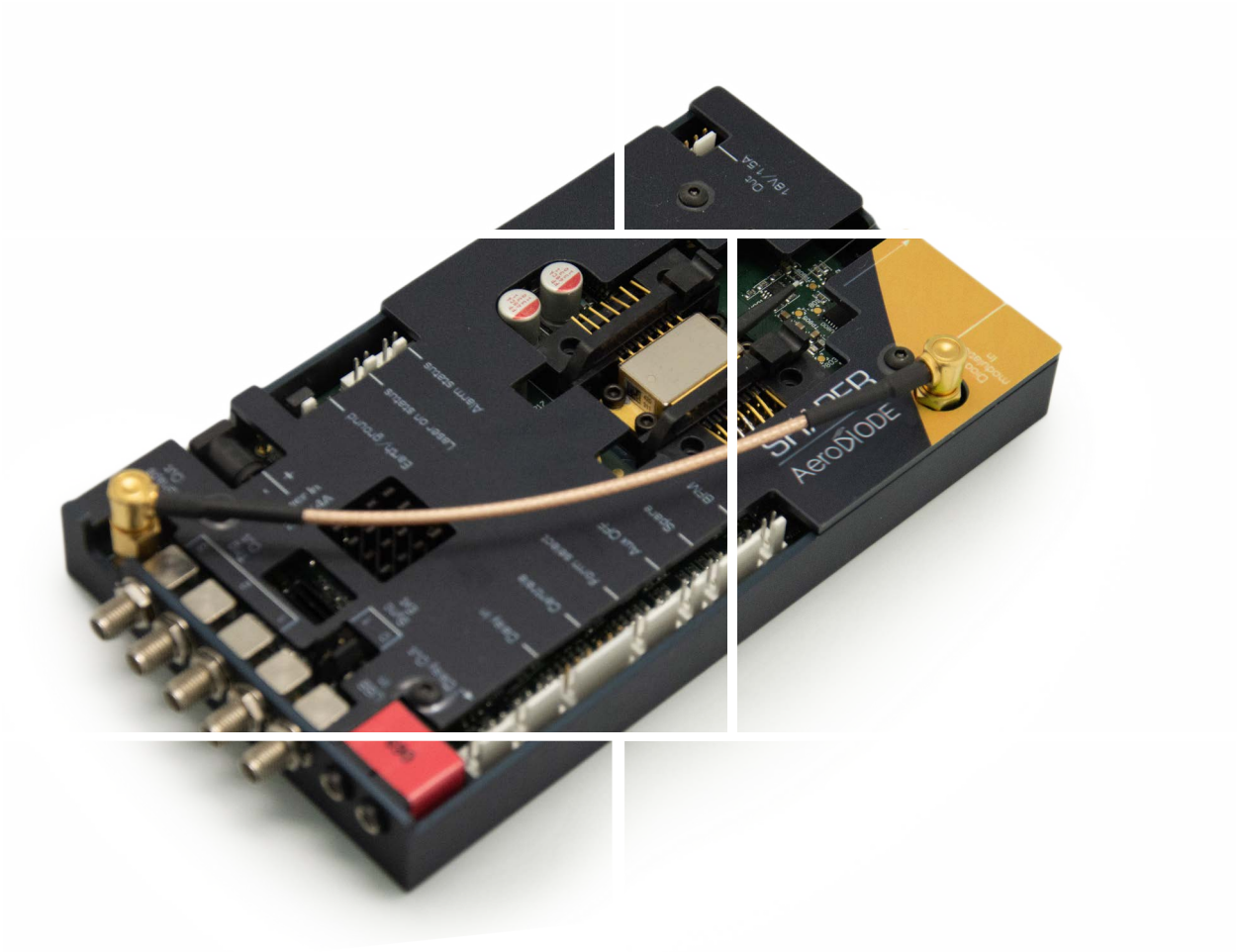
Laser Diode Driver

For precision temporal pulse shaping



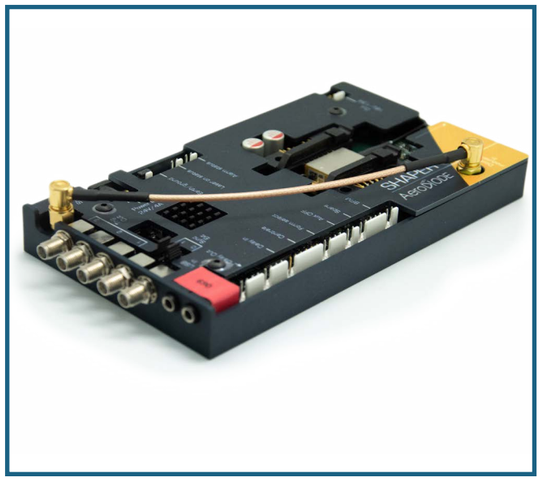
AeroDIODE

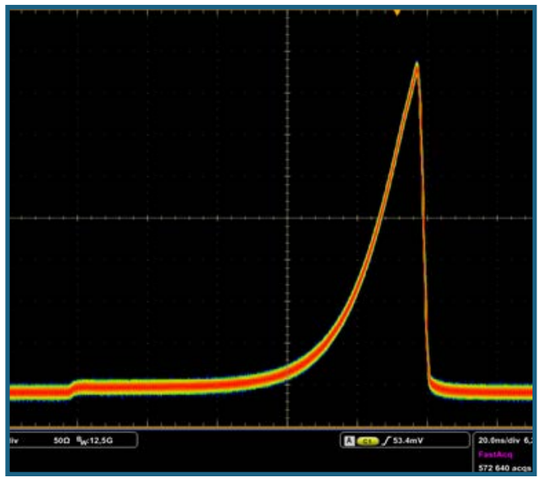
www.aerodiode.com

Laser Diode Driver

For precision pulse shaping

This high-speed laser diode driver generates 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. 2 models for either direct (laser diode) or external (EOM or AOM) pulse modulation. (Note : EOM=Electro-Optic Modulator ; AOM = Acousto-Optic modulator)

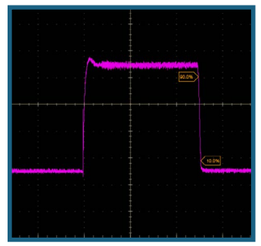




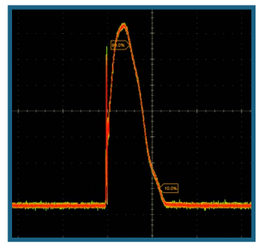
Key features :

- 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
- Ultra-low Jitter down to 8 ps rms with internal clock synchronization using a 10 MHz external clock refreence signal
- 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

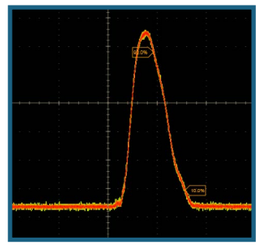
Technical Specifications



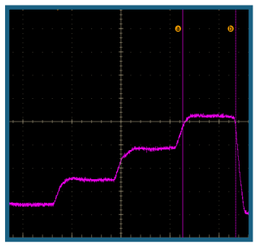
1 A, 100 ns square pulse



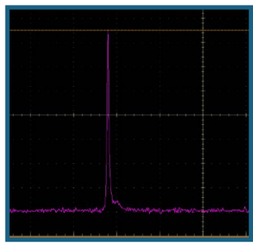
1.5 ns pulse



1.5 ns pulse with activated "gain-switch peak suppression" function



400 mA, 100 ns step wave pulse

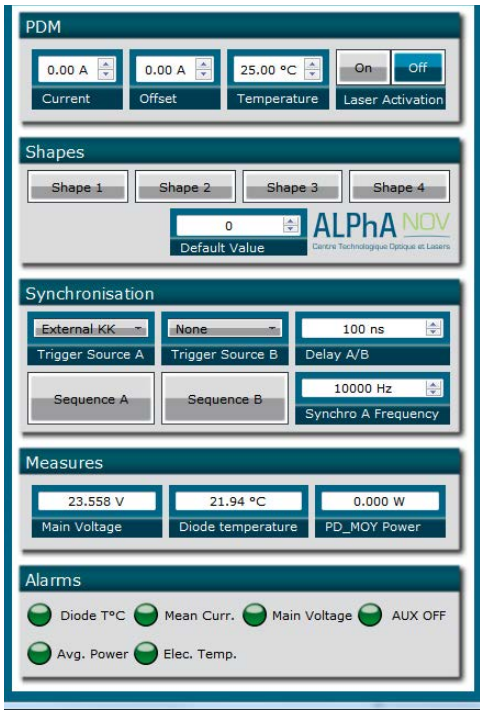


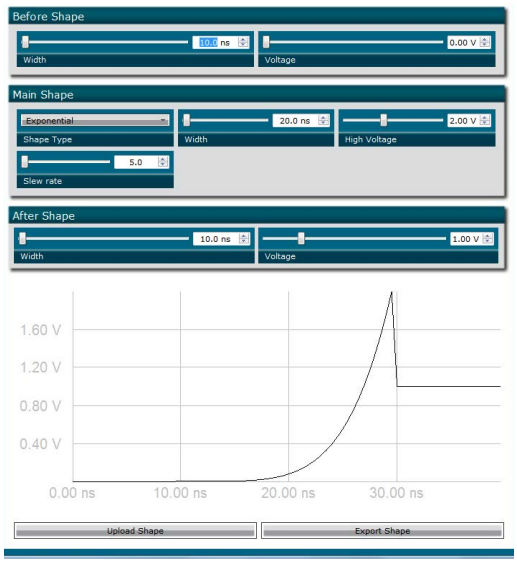
80 ps stable gain-switch pulse (Gain switch performance depends on laser diode)

		Shaper Direct (Direct modulation of the laser diode)	Shaper External (External modulatio of the laser diode - see diagram last page)
Laser diode driver	Pulse mode	user design pulse shape	square pulse (1 ns to CW)
	Peak current level	0 - 1.6A	0 - 1.8A
	Pulse shaping duration (4000 step max)	0.5ns - 8µs	1ns to CW
	Pulse shaping timing resolution	500ps	
	Jitter (internal trigger / External trigger / External trigger with internal clock synchronization using a 10 MHz external clock reference signal)	< 100ps / ± 2.5ns /60ps pk-pk (8ps rms)	
	Pulse current resolution	30µA	
	Laser diode Gain switch peak suppression function	Yes (user switchable and configurable)	no
	Jitter (internal trigger/external trigger)	<100 ps / ±2.5 ns (200 MHz internal clock)	
External modulator driver (EOM or AOM) : See diagram last page or our fiber modulator tutorial for more precisions	EOM/AOM* pulse duration (4000 step max)	Not applicable	0.5ns - 8µs
	EOM/AOM* pulse timing resolution		500ps
	Output voltage (factory configuration)		1V (50 Ohm)/5 V (High-Z)
Pulse Delay Generators outputs (for externalm equipment synchronization)	Number of outputs	3	
	Synchronization signals duration / resolution	0 - 10^9 ns / 1 ns	
	Output voltage	3.3 V (50 Ohm)	
Special functions	Configurable starting modes	4 (OEM, previous settings etc.)	
	Configurable GUI	100% adjustable with many modes (production, maintenance...)	
	Configurable output power supply	0-18V adjustable voltage to drive any additional external board	
General	Compatibilities & Librairies	Win XP/7/10 - Hexa - DLLs - LabVIEW - Python	
	Interface	USB or UART	
	Power supply	24 V/4 A (110 V/220 V adapter included)	

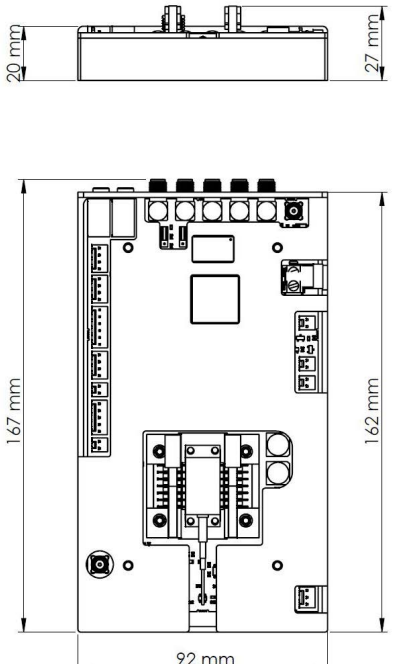
Technical Specifications

GUI control software



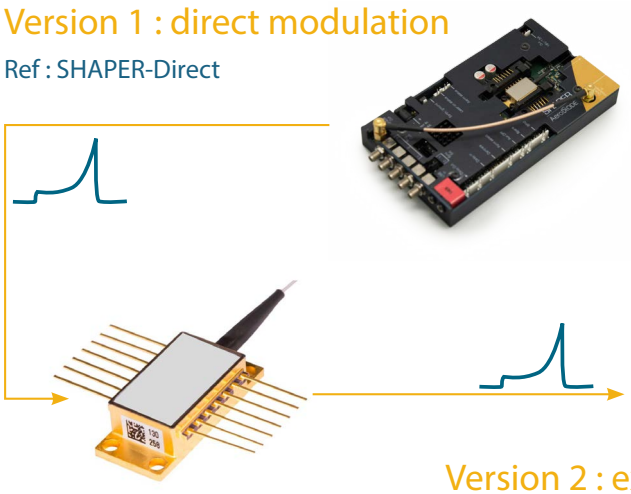


Mechanical



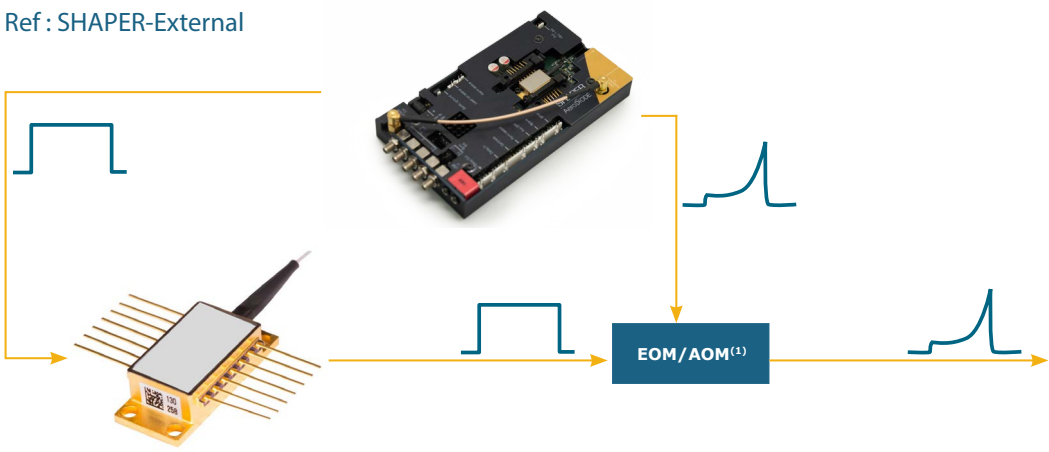
Version 1 : direct modulation

Ref : SHAPER-Direct



Version 2 : external modulation :

Ref : SHAPER-External



(1) *Electro Optic Modulator / Acousto Optic Modulator*

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