

# PDL 828 “Sepia II”

## Multichannel Picosecond Diode Laser Driver

- Modular system, drives up to 8 laser or LED heads
- Pulsed and CW operation
- Computer controlled through USB
- Various operation modes: bursts, simultaneous, delayed, sequential, burst sequence
- Laser heads from 266 to 1990 nm,
- LED heads from 255 to 600 nm



two channel version

### Applications

- Multicolour time-resolved fluorescence spectroscopy (PIE)
- Diffuse optical tomography
- Multiwavelength laser ranging / LIDAR
- Molecular imaging
- Quantum optics, single photon generation



eight channel version

The PDL 828 “Sepia II” is a completely computer controlled multichannel diode laser driver connected to the PC via USB. The PDL 828 “Sepia II” provides maximum flexibility for multiple wavelengths applications and drives any combination of up to 8 laser or LED heads in parallel or in a user defined sequence. Laser heads with wavelengths between 266 and 1990 nm (LDH-P/D/FA Series) as well as pulsed LEDs from 245 to 600 nm (PLS Series) are available. The whole system can be configured and controlled through a dedicated Windows™ control software. Last settings are saved inside the PDL 828 “Sepia II” to allow stand-alone operation making it a powerful device for measurement automation. A DLL is also available and allows to access all functions of the PDL 828 “Sepia II” from custom programs.

The system consists of a mainframe with power supply, an oscillator module and up to eight laser driver modules. The laser driver module is fully compatible to all LDH-P Series laser heads and can in addition drive the latest generation of laser heads, which also allow cw operation (LDH-D-C Series).



## Specifications

<b>Mainframe</b>	
Large, L	1 slot for oscillator module, 8 slots for laser driver modules
Small, S	1 slot for oscillator module, 2 slots for laser driver modules
Power supply	100 to 250 VAC, 50/60 Hz, max. 250 Watts (large) or 130 Watts (small)
Dimensions	large, L: 464 × 310 × 140 mm (w × d × h) small, S: 250 × 310 × 140 mm (w × d × h)
<b>Oscillator module</b>	
Outputs	8 trigger (NIM), 1 synchronization (NIM), 1 auxiliary
Inputs	1 external trigger, 1 auxiliary (TTL)
Operation mode	rotary, programmed sequence of one channel must be completed before next channel is activated, adjacent channels can be grouped; multiple channels can be either combined or delayed (SOM 828-D only)
Oscillator type	crystal locked
Base frequencies	80, 64, 50 MHz (selectable)
Repetition frequency	user-selectable, derived from the selected master frequency or an external trigger source by division through any integer factor between 1 and 256 (SOM 828) or 1 and 65536 (SOM 828-D)
<i>Synchronization output</i>	
Timing	synchronous to repetition frequency, timing position stepwise adjustable within the limits of the repetition frequency, stepsize equals base oscillator period
Masking	synchronization pulses can be inhibited (masked), mask size selectable in integer steps from 0 to 255, stepsize equals repetition period
Amplitude	+500 mV into 50 Ohms (SOM 828); +1.5 V into 50 Ohms (SOM 828-D)
<i>Auxiliary output</i>	
Timing	at start of complete trigger sequence
Amplitude	+500 mV into 50 Ohms
<i>External trigger input</i>	
Amplitude	-5 to +5 V (maximum limits)
Trigger level	-1.2 to +1.2 V
Frequency range	up to 40 MHz
External synchronization	6.25 to 85 MHz (SOM 828-D only)
<i>Bursts</i>	
Burst length	up to 16.7 million pulses
<b>Laser driver module</b>	
Operation mode	1 synchronization (NIM), laser head connector
Repetition frequency of internal oscillator	80, 40, 20, 10, 5 or 2.5 MHz (user-selectable)
Outputs	1 synchronization (NIM), laser head connector
Inputs	1 trigger (NIM), 2 gating (TTL)

<i>Detail gating inputs</i>	
Slow gate	transition time < 100 ms (pulsed and CW)
	internal impedance > 500 Ohms
	connector type: 4-pin LEMO socket – 00.304 series example of connector: FGG.00.304.CLA
Fast gate	transition time typ. 10 ns (pulsed only)
	internal impedance: 50 Ohms
	connector type: 1-pin LEMO Socket – 00.250 Series example of connector: FFA.00.250.NTA
<b>Computer</b>	
Operating system	Windows™ 8 / 8.1 / 10
PC Interface	USB 2.0



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