

LED Pulsed System (LPS)

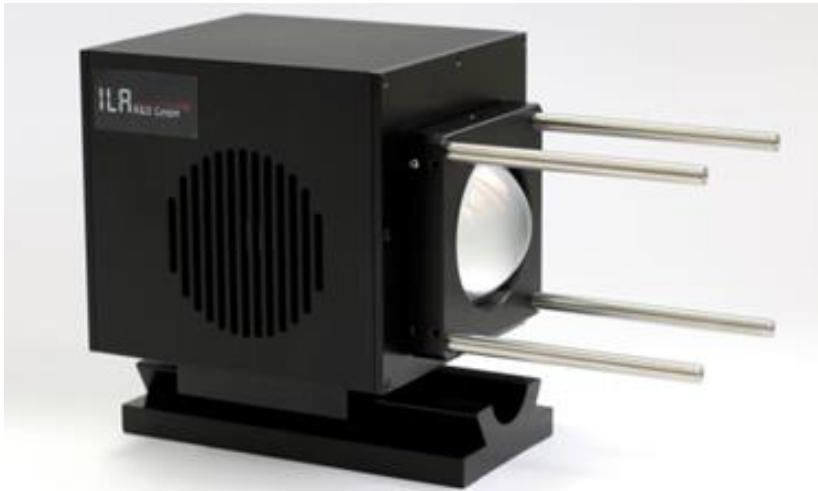


Fig. 1: LED Head

Overview

The re-engineered ILA R&D LPS sets a new standard when it comes to high power LED illumination. It consists of an LED-Head that generates light pulses with LEDs and the ILA R&D Synchronizer. The Synchronizer enables a safe operation and synchronizes the light pulses with your cameras.

We managed to reduce the rise and fall times of the LED substantially to provide sharply defined light pulses and enable high accuracy measurements (see Fig. 2 below). Figure 3 shows that the actual fall time was lowered to less than 50 ns which makes it more suitable for PSP than any other system on the market. The new LPS is also optimized in regards to efficiency. This results in significantly less heat generation, no limit to the application duration and an increased service life.

The new system is not limited to only four separate LED-Heads anymore. You can use various different wavelengths and exchange LEDs easily. With the standard mounting you can attach various different optical set-ups to the LED-Head - including the new flexible fiber optic light sheet (FOLS). Intuitive and easy-to-use control software is included.

The ILA R&D LPS is well suited for applications like PSP, PIV, Shadowgraphy or BOS. It is also an appropriate solution for instructional purposes, without the safety issues of a laser based system. The LPS is highly customizable to meet your exact expectations. No matter if you prefer a custom design or a complete integration into your system.

Please contact ILA R&D and tell us about your needs. We will gladly discuss your application and provide more details.

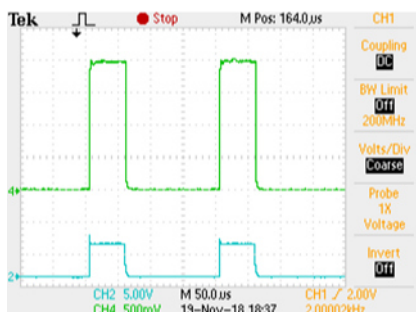


Fig. 2: Triggering of LED pulses 1kHz
(Green: Light pulse, Blue: Trigger signal)

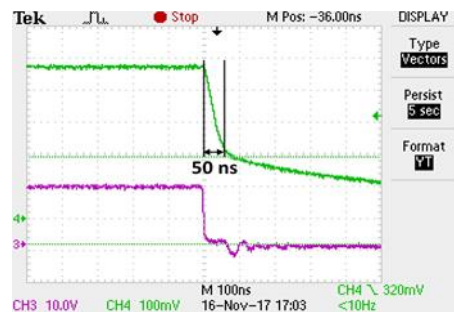


Fig. 3: Detailed view of the triggering with 50 ns fall time
(Purple: LED Voltage, Green: Light pulse)

Specifications

LED-Head

Radiant flux	Up to 40 W (at 395 nm)
Colors	Green, blue, red, white, UV, IR
Dimensions	110 x 100 x 100 mm (w/o optics)
Weight	2.1kg (with short optical bench)
Optional optics	Light sheet, volume, microscope
Power supply	110...230 Vac, 50/60 Hz
Ports	Power supply, Ethernet (100 Mbit), Trigger input, Enable signal input



Fig. 4: LED-Head with fiber optic light sheet (FLOS) on Synchronizer

Features

- Special: Integrated CW-Mode (standalone operation of LED-Head)
- External trigger and enable signal input
- Flexible fiber optic light sheet design
- For higher coupling efficiency
- Smaller head dimensions

Synchronizer

Resolution:	5 ns
Jitter	Ultra-low
Trigger Input	TTL
Repetition rates:	0,047 Hz ...16000 Hz
Trigger inputs	3 inputs at 0,047 Hz...2 MHz
Trigger logic	AND, OR, INVERT
Trigger delay	Time and angle delay
Trigger window	By user definition
Special	Incremental encoder mode, double pulse mode (PIV), asynchronous trigger
Connection	Ethernet (100 Mbit)
Channels	More than four LED-Heads
Configuration	Via ILA R&D PULSAR Software
Power supply	110...230 Vac, 50/60Hz
Dimensions	330 x 370 x 80 mm
Weight	4 kg