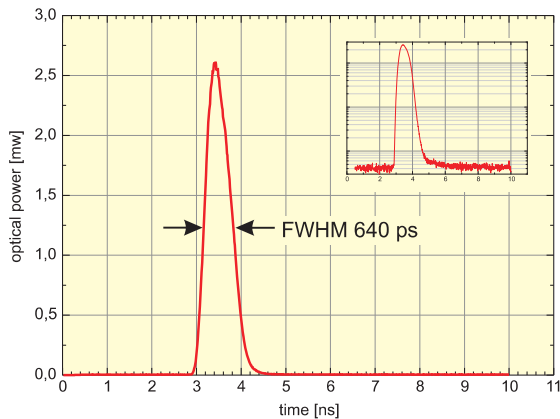


PLS Series



Sub-nanosecond Pulsed LEDs for PDL 800-B/-D/808/828



- Wavelengths from 245 to 600 nm
- Peak power up to 1.5 mW
- Pulse widths as short as 500 ps (FWHM)
- Repetition rates from single shot to 40 MHz
- Optional bandpass filter



Applications

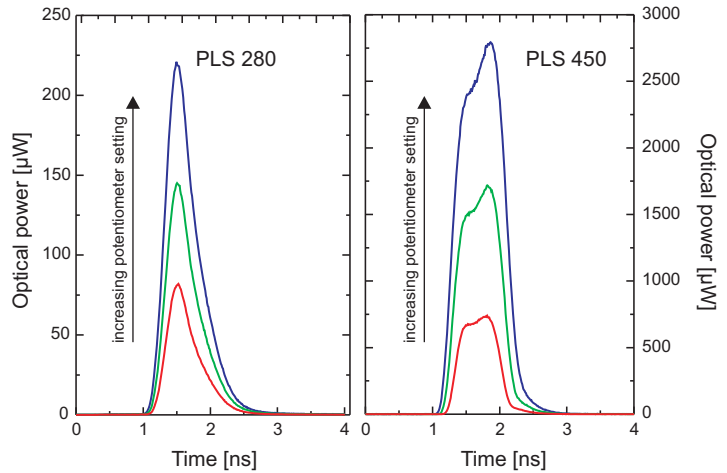
- Time-resolved fluorescence spectroscopy
- Biochemical analysis
- Detection of molecules labeled with Perylene, Coumarin, Fluorescein and Rhodamine dyes
- Intrinsic protein fluorescence from Tryptophan or Tyrosine
- Testing of optoelectronic devices such as pin-diodes and PMTs

Sub-nanosecond Pulsed LEDs

The PLS Series are the fastest miniature sub-nanosecond pulsed LED sources available. They combine short pulse widths (down to 500 ps FWHM) with high repetition rates (from single shot up to 40 MHz, depending on wavelength) in a compact and maintenance free set-up. They are interchangeable plug-in heads for the PDL Series drivers and provide an ideal excitation source to replace flash lamps or Argon-ion lasers for fluorescence lifetime measurements. Their spectral and timing characteristics are also particularly suitable for biomedical applications, e.g. for the detection of labeled substances as well as naturally fluorescent amino acids like tryptophan or tyrosine. With peak powers up to 1.5 mW, a combination of interchangeable PLS Series heads satisfies the demand for a compact and affordable excitation source that covers a wide range of wavelengths.

The system consists of a pulsed laser driver of the PDL Series (PDL 800-B, PDL 800-D, PDL 808 "Sepia", PDL 828 "Sepia II") and interchangeable LED heads. LED heads with center wavelengths between 245 and 600 nm are available and can be provided with optional spectral bandpass filters to excite samples with a narrow spectral range (for other wavelengths, please see data sheet "LDH Series").

The pulse width and power level can be fine-tuned with the adjustable power level control of the PDL Series drivers, to tailor the pulse shape and power level to the application requirements. The laser drivers of the PDL Series feature easy-to-use controls either by means of a potentiometer on the front panel or by a setting in the control software (PDL 828).



Specifications (Please check our website for updated information.)

| PLS with max. repetition rate of 10 MHz | | | | | | |
|---|-------------------------------|------------------------|---------------------------|-------------------------|----------------|--------------------|
| Type | Center wavelengths ± 5 nm | Average power @ 10 MHz | | | Spectral width | Pulse width (typ.) |
| | | without filter | with colored glass filter | with band-pass filter * | | |
| PLS 245 | 245 nm | - | - | 0.4 μ W | < 30 nm | 800 ps |
| PLS 255 | 255 nm | - | - | 1.0 μ W | < 20 nm | 800 ps |
| PLS 265 | 265 nm | - | - | 1.0 μ W | < 20 nm | 700 ps |
| PLS 270 | 270 nm | - | - | 2.0 μ W | < 20 nm | 650 ps |
| PLS 280 ¹ | 280 nm | - | 1.0 μ W | 2.0 μ W | < 20 nm | 900 ps |
| PLS 290 ¹ | 290 nm | - | 1.0 μ W | 2.0 μ W | < 20 nm | 700 ps |
| PLS 300 ¹ | 300 nm | - | 0.8 μ W | 1.0 μ W | < 20 nm | 600 ps |
| PLS 310 ¹ | 310 nm | - | 1.0 μ W | 1.1 μ W | < 20 nm | 600 ps |
| PLS 320 ¹ | 320 nm | - | 0.5 μ W | 0.8 μ W | < 20 nm | 500 ps |
| PLS 330 ² | 330 nm | 1.0 μ W | - | - | < 20 nm | 500 ps |
| PLS 340 ² | 340 nm | 1.0 μ W | - | - | < 20 nm | 500 ps |
| PLS 570 ² | 575 nm | 3.0 μ W | - | - | < 20 nm | < 1.3 ns |

| PLS with max. repetition rate of 40 MHz | | | | | | |
|---|--------------------------------|------------------------|-------------------------|--------------------------|-------------------------|--------------------|
| Type | Center wavelengths ± 10 nm | Average power @ 40 MHz | | Spectral width (approx.) | | Pulse width (typ.) |
| | | without filter | with band-pass filter * | without filter | with band-pass filter * | |
| PLS 370 ³ | 380 nm | - | 8 μ W | - | 15 nm | 600 ps |
| PLS 450 | 460 nm | 80 μ W | 35 μ W | 35 nm | 25 nm | 800 ps |
| PLS 500 | 500 nm | 30 μ W | 13 μ W | 50 nm | 35 nm | 900 ps |
| PLS 600 | 600 nm | 20 μ W | 12 μ W | 20 nm | 18 nm | 950 ps |

All PLS heads are supplied with an integrated lens.
 1: always supplied with a colored glass filter
 2: emission spectrally clean, no additional filter needed
 3: always supplied with a bandpass filter
 *: available as an option

An internal security circuit prevents any damage if the UV LEDs (PLS 245 to PLS 570) are operated above 10 MHz.
 All measurements may be subject to a 10% calibration error.

Dimensions: 30 × 66 / 80.5 mm
 (∅ × length with lens / filter)

All Information given here is reliable to our best knowledge. However, no responsibility is assumed for possible inaccuracies or omissions. Specifications and external appearances are subject to change without notice. Trademarks or corporate names are used for explanation and identification, to the owner's benefit and without intent to infringe.

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