

FSL 500

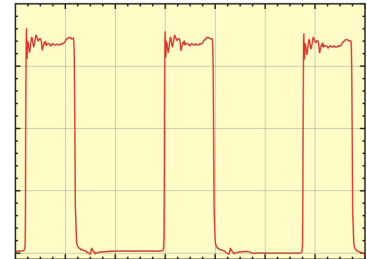
Fast Switched Diode Laser

- Pulse widths adjustable between 3 and 100 ns
- Ultra short rise / fall time down to 0.3 ns / 0.8 ns
- Wavelengths from 375 to 1550 nm
- Repetition rate from single shot to 12 MHz
- User-defined signal patterns via external triggering
- Completely switched off between pulses



Applications

- Time response characterization of optoelectronic devices
- Semiconductor device testing
- Printing industry (Computer-to-Plate technology CTP)
- Optical data storage
- Direct photo lithography



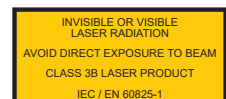
Available Laser Heads

type	wave-length (±10 nm)	max. power mW	rise / fall time ns
LDH-S-C-375	375	12	< 0.5 / < 1.0
LDH-S-C-405	405	16	< 0.5 / < 1.0
LDH-S-C-470	470	10	< 0.5 / < 1.0
LDH-S-C-485	485	10	< 0.5 / < 1.0
LDH-S-C-635	640	12	< 0.5 / < 1.0
LDH-S-C-660	660	20	< 1.0 / < 1.0
LDH-S-C-780	780	20	< 0.5 / < 1.0
LDH-S-C-805	805	30	< 1.0 / < 1.5
LDH-S-C-840	840	20	< 1.0 / < 1.5
LDH-S-C-930	930	20	< 1.8 / < 1.6
LDH-S-C-980	980	40	< 0.5 / < 1.5
LDH-S-C-1060	1060	35	< 0.5 / < 1.5
LDH-S-C-1310	1310	8	< 0.5 / < 1.5
LDH-S-C-1550	1550		upon request

Other wavelengths and optical power levels are available on demand. Please ask PicoQuant for more information.

All measurements may be subject to a 10 % calibration error. Overshoot typically between 50 % and 100 % of the maximum power.

All laser heads include peltier cooling and collimation optics. Optionally for most wavelengths single- and multi-mode optical fibers can be fitted through appropriate fiber couplers.



Specifications

Internal oscillator	
Type	crystal locked
Master frequency	12 MHz standard, other frequencies available upon request
External trigger input	
Amplitude	-5 to +5 V (max. limits)
Trigger level (adjustable)	-1 to +1 V
Impedance	50 Ohms
Connector type	BNC (female)
Synchronization output	
Amplitude	< -800 mV into 50 Ohms (NIM)
Pulse width	6 ns
Impedance	50 Ohms
Connector type	SMA (female)
Timing	
<i>Internally triggered</i>	
Pulse width	3 ns to 100 ns
Frequency range	3, 6, 12 MHz (user-selectable)
Jitter	< 0.2 ns
Delay (approx.)	50 ± 10 ns (from sync output to optical output)
<i>Externally triggered, Slope mode</i>	
Pulse width	3 ns to 100 ns
Frequency range	10 Hz to 12 MHz
Jitter	< 0.2 ns
Delay (approx.)	50 ± 10 ns (from trigger input to optical output)
<i>Externally triggered, Level mode</i>	
Pulse width	3 ns to CW
Frequency range	DC to 12 MHz
Jitter	< 0.2 ns
Delay (approx.)	65 ± 10 ns (from trigger input to optical output)
Remote interlock	
Voltage	< 7 VDC
Loop resistance	10 Ohms max.
Power supply	
Line voltage	110/120 or 220/240 VAC, 50/60 Hz
Power consumption	45 Watts max.
Dimensions	
Driver unit	237 × 310 × 97 mm (w × d × h)

The FSL 500 consists of a common control unit and interchangeable laser heads. The control unit contains the power supply, an internal pulse rate generator and a driver stage that allows to control the duration of the laser pulse regardless of the selected amplitude. The driver stage can be operated in three basic modes: internal, slope, and level triggered. In both, internal and slope triggered mode, the pulse width is controlled by the front panel settings. In the internal mode, the driver operates at a base frequency of 12 MHz, which is manually dividable by 2 and 4, and provides an adjustable laser-on duration up to 100 ns. In the slope triggered mode, the laser pulse is fired by the falling edge of an external electrical input signal. In the level trigger mode, the optical output follows an arbitrary signal pattern of a trigger input, provided that there is an off-time larger than 20 ns between two pulses.

It is possible to select a lower laser pulse amplitude reduced to 30 % of the maximum power. Laser heads are available with wavelengths from 375 nm up to 1550 nm. Since the laser diode is the critical element, the rise time, fall time and overshoot are wavelength dependent. The laser heads come with collimator optics and peltier cooling and can be fitted to single- or multi-mode optical fibers.



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