



BDL-SMN

BDL-SMN Picosecond / CW Diode Laser Family

Free-beam output or single-mode fibre coupling

Beam-profile correction optics

Wavelengths 375 nm, 405 nm, 445 nm, 473 nm, 488 nm, 515 nm, 640 nm, 685 nm, 785 nm

Pulsed and CW operation

Pulse width down to 40 ps

Repetition rate 20-50-80 MHz

Low skew trigger output

Cooled laser diode

Internal power regulation loop

Linear response to power control signal

Fast on / off / multiplexing capability

Synchronisation input

Complete electronics integrated in laser housing

Simple +12V wall-mounted power supply

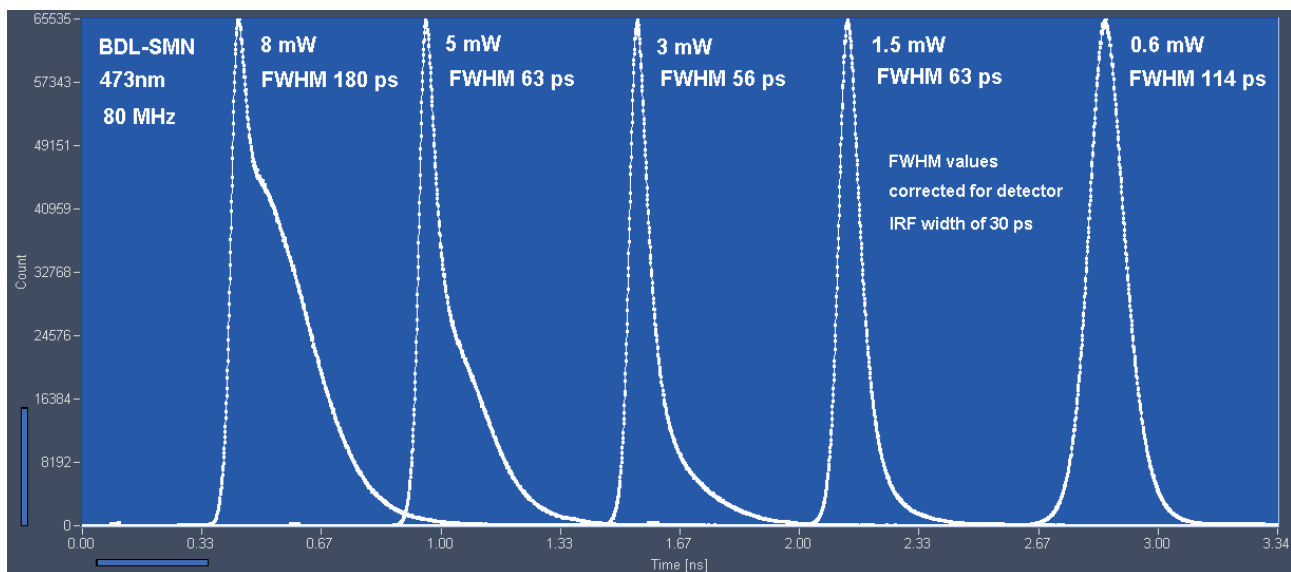
Luminescence lifetime experiments

Laser scanning microscopy

Fluorescence correlation

Time-correlated single photon

counting experiments



Designed and manufactured by



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Optical

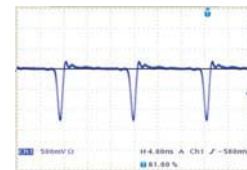
Repetition Rate
 Wavelength, nm
 Pulse width (FWHM, at medium power)
 Pulse width (FWHM, at maximum power)
 Peak Power
 Power control range
 (Average CW equivalent power,
 adjustable via external power control signal)
 Diameter of laser beam
 Polarisation
 Fibre coupling
 Coupling efficiency into single-mode fibre, typically
 Stability of Repetition Rate
 Pulse-to Pulse Jitter
 Reaction time to 'Laser on' signal (pulsed mode)
 Reaction time to 'Laser on' signal (CW mode)
 Power and pulse shape stabilisation after switch-on

20-50-80 MHz, or CW operation
 375, 405, 445, 473, 488, 515, 640, 685, 785, other on request
 40 to 90 ps ²⁾
 200 to 300 ps ²⁾
 40 to 500 mW ¹⁾
 20 MHz: 0 to 0.6 mW 0 to 2 mW ²⁾
 50 MHz: 0 to 1.5 mW 0 to 5 mW ²⁾
 80 MHz: 0 to 2.4 mW 0 to 8 mW ²⁾
 CW mode: 0 to 20 mW 0 to 50 mW ²⁾
 0.7 mm, TEM₀₀ mode
 horizontal
 Kineflex system of Qioptiq
 60%
 ± 100 ppm
 < 20 ps
 3 µs
 3 µs
 2 min ⁵⁾

Trigger Output

Pulse Amplitude
 Pulse Width
 Output Impedance
 Connector
 Delay from Trigger to Optical Pulse
 Jitter between Trigger and Optical Pulse

1 V (peak) into 50 Ω
 1 ns
 50 Ω
 SMA
 < 1 ns
 < 10 ps



Synchronisation Input

Amplitude
 Duty cycle
 Frequency
 Switching from internal clock to snc input

+3.3 to +5V into 50 Ω
 10 to 30 %. DC equivalent must be < 2.5V
 20 to 80 MHz
 Automatic, by average voltage at sync input connector

Control Inputs

Frequency 20 MHz
 Frequency 50 MHz
 Frequency 80 MHz
 CW operation
 Laser ON / Off
 External Power Control

TTL / CMOS high ³⁾
 TTL / CMOS high ³⁾
 TTL / CMOS high ³⁾
 TTL / CMOS high ³⁾
 TTL / CMOS low ³⁾
 analog input, 0 to + 10V

Power Supply

Power Supply Voltage
 Power Supply Current
 Power Adapter

+ 9 V to +12 V
 300 mA to 1.5 A ⁴⁾
 AC-DC power adapter, with key switch and control box in cable

Mechanical Data

Dimensions
 Mounting Thread

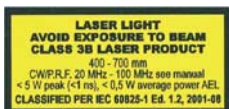
160 mm x 90 mm x 60 mm
 two M6 holes

Maximum Values

Power Supply Voltage
 Voltage at Digital Control Inputs
 Voltage at Ext. Bias Input
 Ambient Temperature

0 V to +15 V
 -2 V to +7 V
 -12 V to + 12 V
 0 °C to 40 °C ⁵⁾

- 1) Typical values, sample tested. Depends on pulse width and selected power.
- 2) Depends on wavelength version.
- 3) All inputs have 10 kΩ pull-up resistors. Open input is equivalent to logic 'high'.
- 4) Dependent on ambient temperature. Cooling current changes due to temperature regulation of laser diode
- 5) Operation below 13 °C may result in extended warm-up time.



Caution: Class 3B laser product. Avoid direct eye exposure. Light emitted by the device may be harmful to the human eye. Please obey laser safety rules when operating the devices. Complies with US federal laser product performance standards.

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