



BDU-SM

BDU-SM Family USB-Controlled Picosecond Diode Lasers

Small-size, 40 mm x 80 mm x 120 mm

USB interface

Power supply from USB port

No external controller or power supply

Wavelengths from 375 nm to 785 nm

Pulse repetition rate 20, 50, 80 MHz, CW

Pulse width down to 40 ps

Excellent timing stability

Excellent power stability

No warm-up time

Free-beam or single-mode fibre output

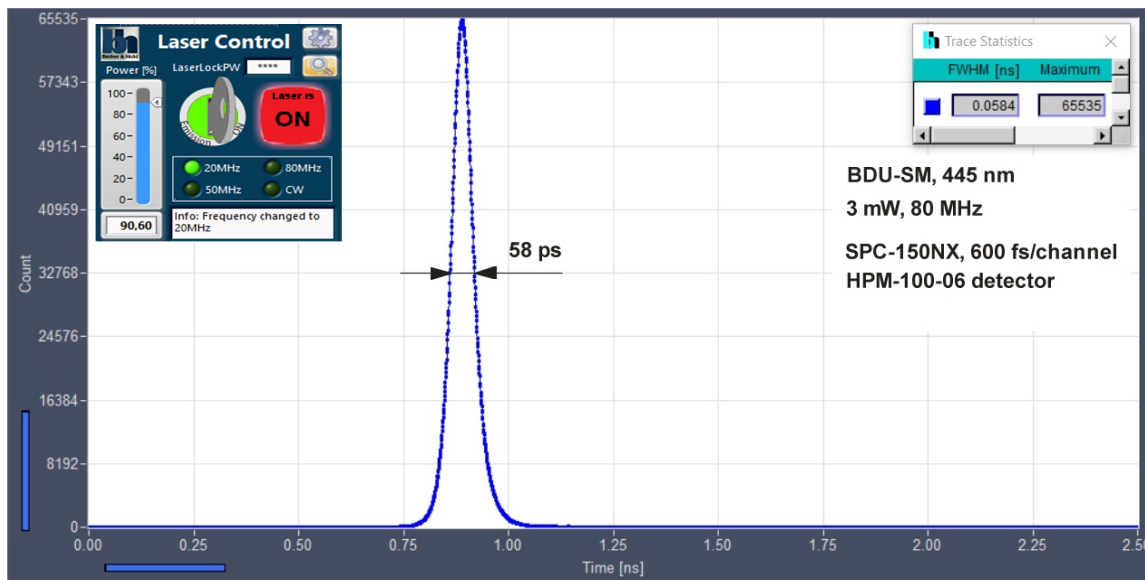
Free-beam power in pulsed mode up to 3 mW

Free-beam power in CW mode up to 10 mW

Internal power stabilisation loop

USB 2.0 compatible

Compatible with all bh TCSPC devices



Pulse shapes and power levels may change due to development in laser diode technology. Coupling efficiency into single-mode fibres is 40 to 60%.

Designed and manufactured by



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BDU-SM

Optical

Repetition Rate, selected via USB

Wavelengths

Pulse width (FWHM, at medium power)

Pulse width (FWHM, at maximum power)

Power control range (ps mode, 80 MHz, power in free beam)

Power control range (CW mode, power in free beam)

Beam diameter, free beam

Polarisation

Coupling efficiency into single-mode fibre, typically

20 MHz, 50 MHz, 80 MHz, for other repetition rates contact bh
375 nm, 405 nm, 445 nm, 470 nm, 485 nm, 515 nm, 640 nm, 685 nm, 785 nm, for other contact bh

30 to 90 ps

60 to 300 ps

0 to 1 mW 0 to 5 mW, depends on wavelength version

0 to 10 mW, limited by USB power supply limitations

0.8 mm

vertical

40% to 60 %

SYNC / Trigger Output, to TCSPC Modules (Con1, see right)

Connector

Pulse Amplitude

Pulse Width

Output Impedance

Jitter between Trigger and Optical Pulse

Timing stability, trigger out to optical pulse

SMA

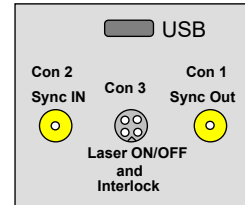
-1.2 V (peak) into 50 Ω

1 ns, see figure lower right

50 Ω

< 5 ps

< 2 ps over 10 minutes



Synchronisation Input (Con2, see right)

Connector

Input pulse amplitude

Duty cycle

Switching between external sync and internal oscillator

SMA

+3.3 to +5V into 50 Ω

10 to 30 %. DC equivalent must be < 2.5V

By average input voltage

Vav < 2.5V: External. Vav > 2.5V: Internal

10 MHz to 80 MHz

Input frequency range

Laser ON/OFF Modulation Input (Con 3, see right)

Signal Levels

Response time of optical output to on/off signal

Standard configuration, active H, normally ON

Special configuration, active H, normally OFF

Special configuration, active L, normally ON

Special configuration, active L, normally OFF

TTL / CMOS

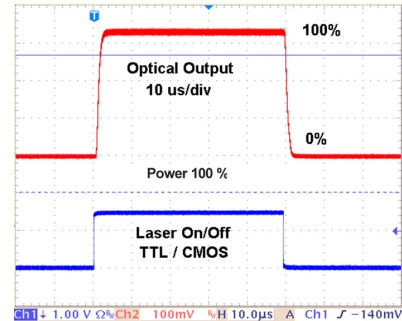
< 4 μ s for power 10 to 100%, see figure right

TTL / CMOS H: Emission on, pull-up resistor

TTL / CMOS H: Emission on, pull-down resistor

TTL / CMOS L: Emission on, pull-up resistor

Special configurations on demand



Safety Interlock Function (Con 3, see right)

Laser enabled:

Laser disabled

Con 3 INTLCK connected to GND

Con 3 INTLCK open

USB Interface

Version

Connector

USB 2.0 standard

USB C

Power Supply

Power Supply Voltage

Power Supply Current

+5V from USB port

200 mA to 800 mA

Mechanical Data

Dimensions, including heat sink

Mounting holes

40 mm x 80 mm x 120 mm

four holes for M3 screws

Maximum Ratings

Supply voltage

Voltage at 'Laser On/Off' input

Ambient Temperature

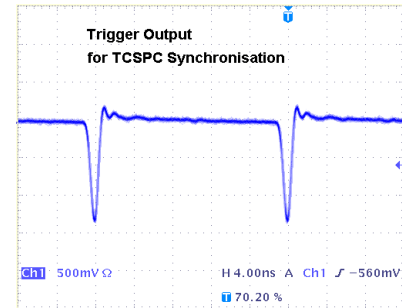
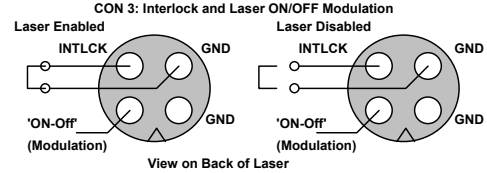
4.5 V to 5.5 V

-2 V to +7 V

0 °C to 40 °C

Related Products

BDS-SM picosecond and CW diode lasers, BDS-MM picosecond diode lasers



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

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