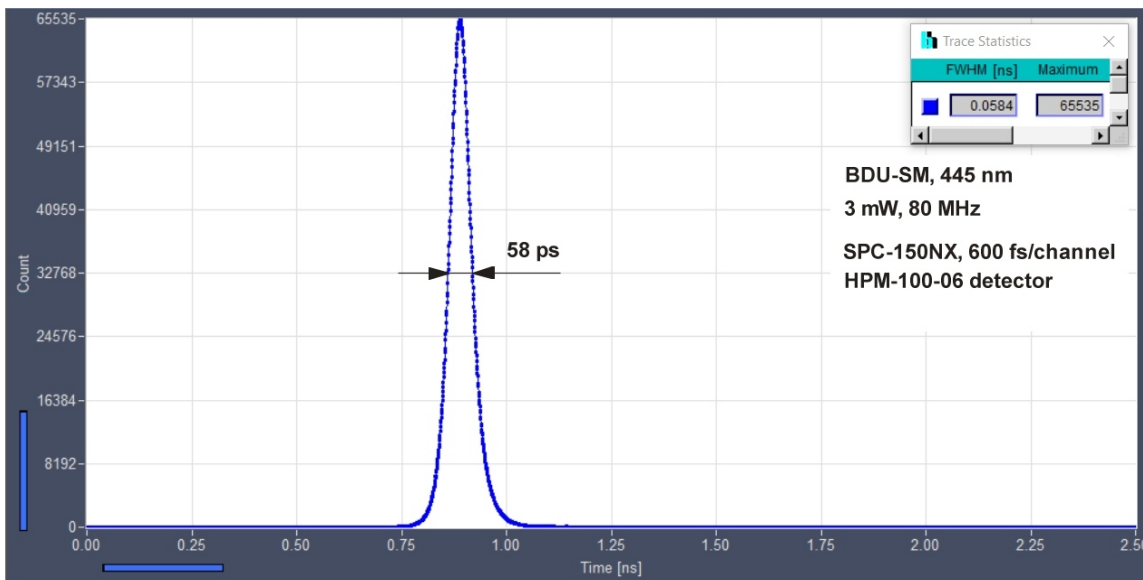




BDU-SM

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 3.0, 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 20 MHz, 50 MHz, 80 MHz, for other repetition rates contact bh
 Wavelengths 375 nm, 405 nm, 445 nm, 470 nm, 485 nm, 515 nm, 640 nm, 685 nm, 785 nm, for other contact bh
 Pulse width (FWHM, at medium power) 30 to 90 ps
 Pulse width (FWHM, at maximum power) 60 to 300 ps
 Power control range (ps mode, 80 MHz, power in free beam) 0 to 1 mW 0 to 5 mW, depends on wavelength version
 Power control range (CW mode, power in free beam) 0 to 10 mW, limited by USB power supply limitations
 Beam diameter, free beam 0.7 mm x 1.2 mm
 Polarisation horizontal
 Coupling efficiency into single-mode fibre, typically 40% to 60%

Trigger Output, to TCSPC Modules

Pulse Amplitude -1.2 V (peak) into 50 Ω
 Pulse Width 1 ns, see figure lower right
 Output Impedance 50 Ω
 Connector SMA
 Jitter between Trigger and Optical Pulse < 5 ps
 Timing stability, trigger out to optical pulse < 2 ps over 10 minutes

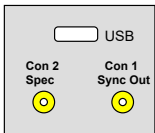
ON/OFF Control Input (see control functions)

Laser ON / Off TTL / CMOS
 Response of optical output to on/off signal < 4 us for power 10 to 100%, see figure right

Synchronisation Input (see control functions)

Input pulse amplitude +3.3 to +5V into 50 Ω
 Duty cycle 10 to 30 %. DC equivalent must be < 2.5V
 By average input voltage
 V_{av} < 2.5V: External. V_{av} > 2.5V: Internal
 Input frequency range 10 MHz to 80 MHz
 Connector SMA, CON 2

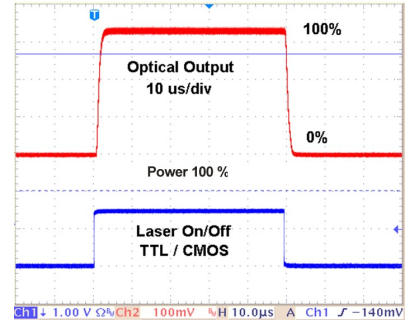
Control Functions / Connectors



Standard Version
 Con1: Sync to TCSPC
 Con2: /Laser ON or Interlock H
 Internal pull-up resistor
 Connect to GND to enable Emission
 No Sync In available

Special 1
 Con1: Sync to TCSPC
 Con2: Laser ON or Interlock L
 Internal pull-down resistor
 Connect to +5V to enable Emission
 No Sync In available

Special 2
 Con1: Sync to TCSPC
 Con2: Sync In or Interlock L
 V_{average} > 2.5V internal
 V_{average} < 2.5V external
 Keep at GND to disable emission



USB Interface

Version USB 2.0 standard
 Connector USB C

Power Supply

Power Supply Voltage +5V from USB port
 Power Supply Current 200 mA to 800 mA

Mechanical Data

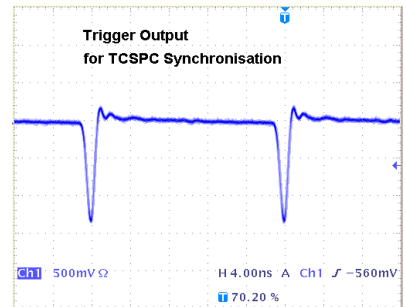
Dimensions, including heat sink 40 mm x 80 mm x 120 mm
 Mounting holes four holes for M3 screws

Maximum Ratings

Supply voltage 4.5 V to 5.5 V
 Voltage at 'Laser On/Off' input -2 V to +7 V
 Ambient Temperature 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.

International Sales Representatives



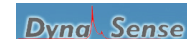
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