

Pulsed laser diode illuminator (QD-Qxy10-IL)

Laser solutions by LUMIBIRD

Packaged short-pulse illuminator



MAIN FEATURES

- mJ CLASS NIR LASER DIODE ILLUMINATOR
- SUPERGAUSSIAN TEMPORAL PULSE SHAPE
 - 30 to 100 ns (FWHM)
- PULSE REPETITION RATE **UP TO 6 kHz**
- HIGH ELECTRICAL-TO-OPTICAL EFFICIENCY ~ 25%
 - High efficiency diode bars
 - High efficiency current pulse generator
- UP TO 1W AVERAGE POWER WITH NATURAL CONVECTION SUCH AS:
 - 1 mJ pulse energy at 1 kHz
 - 2 mJ pulse energy at 500 Hz
- FAST AXIS COLLIMATION
- 24 VDC LOW POWER CONSUMPTION
- USER-ADJUSTABLE
 - 5 or 10 mm emission width
 - Standard wavelengths : 808, 905 or 980 nm
- ROBUST DESIGN
 - High reliability (> 100 x 10⁹ shots)
 - Shock and vibration resistant
 - Qualified for defense and space applications

APPLICATIONS

- PHOTOACOUSTICS
- NIR SPECTROSCOPY
- ULTRASOUND GENERATION
- 3D FLASH LIDAR
- TIME OF FLIGHT

MARKETS

- MEDICAL
- AUTOMOTIVE
- CIVIL ENGINEERING
- SECURITY
- DEFENSE & SPACE
- AEROSPACE

OPTIONS

- EXTERNAL POWER SUPPLY
- TEC COOLING & FAN / WATER COOLING
- OTHER WAVELENGTHS WITH LESS ENERGY: 635 nm / 760 nm / 940 nm / 1.55 µm

OUTPUT ENERGY AT 25°C

PULSE WIDTH	EMISSION WIDTH	MAXIMUM FREQUENCY	OUTPUT ENERGY
100 ns	10 mm	1 kHz	4 mJ
90 ns			3.5 mJ
80 ns			3 mJ
70 ns		2 kHz	2.75 mJ
60 ns			2.5 mJ
50 ns			2 mJ
40 ns	5 mm	4 kHz	1.5 mJ
30 ns		6 kHz	1 mJ

Energy can be adjusted from 10% to 100% by external 0-5 VDC power supply.

OTHER SPECIFICATIONS

PARAMETERS	UNIT	5-mm WIDTH	10-mm WIDTH
STACK CHARACTERISTICS			
Number of diode bars		Up to 10	
Bar-to-bar pitch	µm	500	
BEAM CHARACTERISTICS			
Spot width in SA ⁽¹⁾ (FWHM)	mm	5	10
Slow axis divergence (FWHM)	deg	< 12	
Spot height in FA ⁽¹⁾ (FWHM)	mm	5	
Fast axis divergence with FAC ⁽²⁾ (FWHM)	deg	< 3	
FAC lenses to output window distance	mm	4	
Wavelength at 25°C ⁽³⁾	nm	808, 905 or 980 (± 5 Typ.)	
Spectral width	nm	< 10	
Polarization		TE mode	

PARAMETERS	CONNECTOR MODEL	5-mm WIDTH	10-mm WIDTH
ELECTRICAL REQUIREMENTS			
General voltage DC power supply	LUMBERG (RSDF 4/0.2 M)	24 VDC / < 2 A	
Energy adjustment voltage supply ⁽⁴⁾		0-5 VDC / < 0.2 A	
Temperature sensor ⁽⁵⁾	LUMBERG (RSDF 4/0.2 M)	PT1000	
Trigger signal	SMA Jack/Female	Pulse mode, 5 V TTL, 1 ≤ width ≤ 3 µs Frequency up to 6 kHz	

PARAMETERS	UNIT	5-mm WIDTH	10-mm WIDTH
OPERATING CONDITIONS			
Operating temperature	°C	+ 15 to + 40	
Storage temperature	°C	- 20 to + 80	
Humidity		Non condensing for humidity rate lower than 70 %	
Lifetime at maximum energy		> 100 x 10 ⁹ shots	

(1) SA : Slow axis, FA : Fast axis

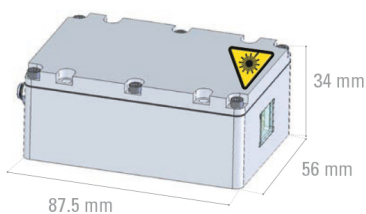
(2) FAC : Fast axis collimation

(3) Variation of wavelength with temperature is approximately 0.3 nm/°C.

(4) Without any DC voltage (0-5 VDC), the output energy is maximum. When applying DC voltage between 0 and 5VDC to adjust the output energy, the pulse width will decrease as well as the output energy (at 10% of maximum energy, pulse duration will be reduced by 50 %).

(5) A temperature sensor is included and fixed onto the laser diode base. Laser diode temperature can be monitored via a LUMBERG connector.

DIMENSIONS



DRAWINGS: PIMK 10690



Many options and configurations are available. Please contact Lumibird to find the best match for your needs and compatibility between options.



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