

# Pulsed laser diode illuminator (QD-QXY10-ILO)

Laser solutions by LUMIBIRD

## High pulse repetition rate



### MAIN FEATURES

- mJ CLASS NIR LASER DIODE ILLUMINATOR
- SUPERGAUSSIAN TEMPORAL PULSE SHAPE
  - 100 to 200 ns (FWHM)
- PULSE REPETITION RATE **UP TO 10 kHz**
- HIGH AVERAGE POWER
  - Up to 15 W with 5-mm emission width
  - Up to 20 W with 10-mm emission width
- HIGH EFFICIENCY DIODE BARS
  - Standard wavelengths: 808, 915, 940 or 980 nm
- FAST AXIS COLLIMATION
- 12 VDC LOW POWER CONSUMPTION
- COMPACT AND PORTABLE
- PROTECTIVE HOUSING
- ROBUST DESIGN
  - High reliability (> 100 x 10<sup>9</sup> 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

### OUTPUT ENERGY AT 25°C

PULSE WIDTH	EMISSION WIDTH	
	5 mm	10 mm
200 ns	1.7 mJ	2.5 mJ
175 ns		2.25 mJ
150 ns		2 mJ
125 ns	1.5 mJ	
100 ns	1 mJ	

Output energy can be adjusted from 10% to 100% by external 0-12 VDC power supply.

### OPTIONS

- EXTERNAL POWER SUPPLY
- TEC COOLING & FAN / WATER COOLING
- OTHER WAVELENGTHS WITH LESS ENERGY: 635 nm / 760 nm / 1.55  $\mu$ m

## OTHER SPECIFICATIONS

PARAMETERS	UNIT	5-mm WIDTH	10-mm WIDTH
STACK CHARACTERISTICS			
Number of diode bars		Up to 10	
Bar-to-bar pitch	μm	800	
BEAM CHARACTERISTICS			
Spot width in SA <sup>(1)</sup> (FWHM)	mm	5	10
Slow axis divergence (FWHM)	deg	< 11	
Spot height in FA <sup>(1)</sup> (FWHM)	mm	8	
Fast axis divergence with FAC <sup>(2)</sup> (FWHM)	deg	< 2	
FAC lenses to output window distance	mm	4	
Wavelength at 25°C <sup>(3)</sup>	nm	808, 915, 940 or 980 (± 5 Typ.)	
Spectral width	nm	< 10	
Polarization		TE mode	

PARAMETERS	CONNECTOR MODEL	5-mm WIDTH	10-mm WIDTH
<b>ELECTRICAL REQUIREMENTS</b>			
General voltage DC power supply	2 sockets Ø2mm (LB_I2R)	12 VDC / < 5 A	
Energy adjustment voltage supply <sup>(4)</sup>	LUMBERG (RSDF 4/0.2 M)	0-12 VDC / < 0.5 A	
Temperature sensor <sup>(5)</sup>		PT1000	
Trigger signal	SMA Jack/Female	Pulse mode, 5 V TTL, 1 ≤ width ≤ 5 µs Frequency up to 10 kHz	

PARAMETERS	UNIT	5-mm WIDTH	10-mm WIDTH
<b>OPERATING CONDITIONS</b>			
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 <sup>9</sup> shots	

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

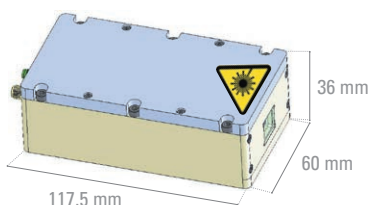
(2) FAC : Fast axis collimation

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

(4) Without any DC voltage (0-12 VDC), the output energy is maximum. When applying DC voltage between 0 and 12 VDC 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 30 %).

(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 10682



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

