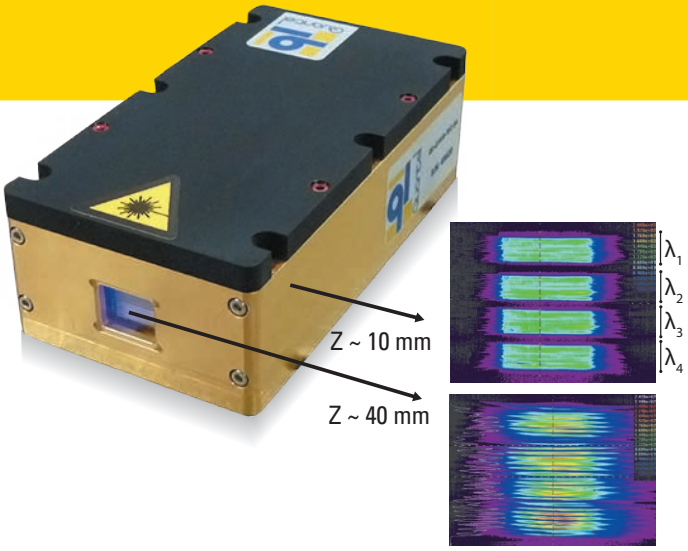
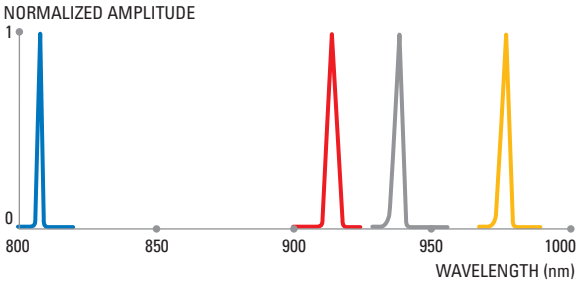
Pulsed laser diode illuminator (QD-Qxy24-ILO(4))

Laser solutions by **LUMIBIRD**

Multi-wavelength emission



Z = Distance from laser diode



MAIN FEATURES

- UP TO 8 mJ NIR LASER DIODE ILLUMINATOR
- SUPERGAUSSIAN TEMPORAL PULSE SHAPE
  - 80 to 130 ns (FWHM)
- UP TO 4 WAVELENGTHS TOGETHER
  - Standard wavelengths: 808, 915, 940, 980 nm
  - Any combination of wavelengths is possible
  - Each wavelength can be triggered independently
- HIGH REPETITION RATE
  - Up to 6 kHz in continuous mode
  - Up to 10 kHz in burst mode
- UP TO 2W AVERAGE POWER WITH NATURAL CONVECTION SUCH AS:
  - 1 wavelength at 2 mJ at 1 kHz
  - 4 wavelengths at 2 mJ each at 250 Hz
- HIGH EFFICIENCY DIODE BARS
- FAST AXIS COLLIMATION
- EXTERNAL POWER SUPPLY REQUIRED
  - 120 VDC for pulse energy
  - 12 VDC for driver PCB
- COMPACT AND PORTABLE
- PROTECTIVE HOUSING
- ROBUST DESIGN
  - High reliability (> 100 x 10^9 shots)
  - Shock and vibration resistant
  - Qualified for defense and space applications

OPTIONS

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

APPLICATIONS

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

MARKETS

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

OUTPUT ENERGY PER WAVELENGTH AT 25°C

PULSE WIDTH	5-mm EMISSION WIDTH		10-mm EMISSION WIDTH	
	MAXIMUM FREQUENCY	ENERGY PER WAVELENGTH	MAXIMUM FREQUENCY	ENERGY PER WAVELENGTH
130 ns	4 kHz	1 mJ	3 kHz	2 mJ
100 ns			4.5 kHz	1.5 mJ
80 ns	5 kHz	0.8 mJ	6 kHz	1 mJ

Output energy can be adjusted from 0 to 100% by varying the high voltage between 0 and 120 VDC.

Quantel laser BY LUMIBIRD

OTHER SPECIFICATIONS

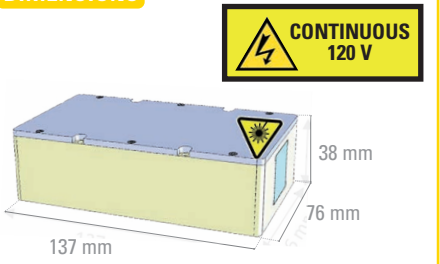
PARAMETERS	UNIT	5-mm WIDTH	10-mm WIDTH
DIODE CHARACTERISTICS			
Number of wavelengths		Up to 4	
Mechanical pitch between wavelengths	mm	3.85	
Number of diode bars per wavelength		Up to 6	
Bar-to-bar pitch	µm	430	
BEAM CHARACTERISTICS PER WAVELENGTH			
Spot width in SA(1) (FWHM)	mm	5	10
Slow axis divergence (FWHM)	deg	< 11	
Spot height in FA(1) (FWHM)	mm	2.15	
Fast axis divergence with FAC(2) (FWHM)	deg	< 3	
Wavelength per stack, at 25°C(3)	nm	808, 915, 940 or 980 (± 5 Typ.)	
Spectral width	nm	< 10	
Polarization		TE mode	

PARAMETERS	CONNECTOR MODEL	5-mm WIDTH	10-mm WIDTH
ELECTRICAL REQUIREMENTS			
Low voltage DC power supply	HIROSE (HR10-7R-4S(73))	12 VDC / < 0.2 A	
High voltage DC power supply(4)		0-120 VDC / < 1 A / 12A peak	
Temperature sensor (5)	LUMBERG (RSDF 4/0.2 M)	PT1000	
Trigger signal(6)	4 SMA Jack/Female	Pulse mode, 5 V TTL, 1 ≤ width ≤ 5µs Frequency up to 10 kHz in burst mode	

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) Output energy can be adjusted by varying high voltage between 0 and 120 VDC. In that case, 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.
(6) One trigger signal is required per wavelength.

DIMENSIONS



DRAWINGS: PIMK 10679

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