

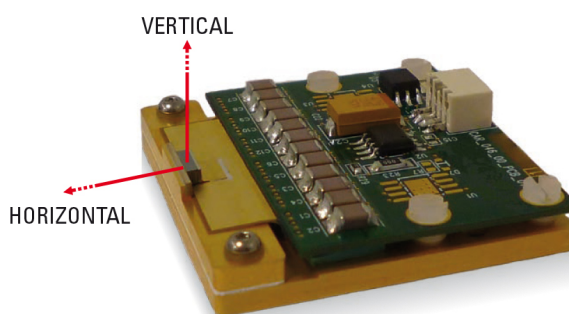
Pulsed laser diode illuminator (QD-Qxy10-IL)

Laser solutions by LUMIBIRD

Ultra-compact 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 10 kHz**
- ULTRA-COMPACT MODULE
- VERY HIGH BRIGHTNESS, UP TO 500 kW/cm²
- 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
- EASY TO INTEGRATE
 - Horizontal or vertical emission
 - With or without fast-axis collimation
 - 5 or 10 mm emission width
 - Standard wavelengths : 808, 905 or 980 nm
 - With or without high voltage DC integrated on board
- 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

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	5 mm	3 kHz	2 mJ
40 ns		4 kHz	1.5 mJ
30 ns		6 kHz with on-board HV 10 kHz with external HV	1 mJ

Energy can be adjusted from 10% to 100% by external DC power supply applied on J1.

BEAM SPECIFICATIONS

PARAMETERS	UNIT	WITHOUT COLLIMATION	WITH COLLIMATION
STACK CHARACTERISTICS			
Number of diode bars		Up to 10	
Bar-to-bar pitch	μm	140	500
BEAM CHARACTERISTICS			
Spot width in SA ⁽¹⁾ (FWHM)	mm	5 or 10	
Slow axis divergence (FWHM)	deg	< 12	
Spot height in FA ⁽¹⁾ (FWHM)	mm	1.3	5
Fast axis divergence (FWHM)	deg	< 40	< 3
Wavelength at 25°C ⁽²⁾	nm	808, 905 or 980 (± 5 Typ.)	
Spectral width	nm	< 10	
Polarization		TE mode	

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

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

OTHER SPECIFICATIONS

PARAMETERS	CONNECTOR	WITH HIGH VOLTAGE ON BOARD	EXTERNAL HIGH VOLTAGE
ELECTRICAL REQUIREMENTS			
Low voltage DC power supply	J1	24 VDC / < 2 A	9-15 VDC / < 0.5 A
High voltage DC power supply			0-220 VDC / < 0.5 A 10 A peak
Energy adjustment voltage supply ⁽⁴⁾		0-5 VDC / < 0.2 A ⁽³⁾	Adjustment via high voltage power supply
Trigger signal	J2	Pulse mode, 5 V TTL, 1 ≤ width ≤ 3μs Frequency up to 6 kHz	

PARAMETERS	UNIT	WITH HIGH VOLTAGE ON BOARD	EXTERNAL HIGH VOLTAGE
OPERATING CONDITIONS			
Operating temperature	°C	+ 15 to + 40	
Storage temperature	°C	- 20 to + 80	
Humidity		Non condensing environment (HR<70%)	
Lifetime at maximum energy		> 100 x 10 ⁹ shots	

(3) Without any DC voltage (0-5VDC), the output energy is maximum.

When applying DC voltage between 0 and 5VDC, the output energy can be adjusted.

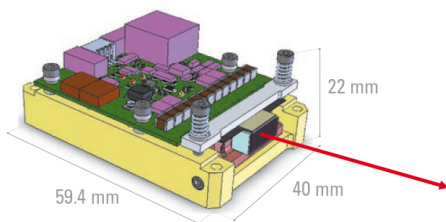
(4) When the output energy is adjusted from 10% to 100%, the pulse width will decrease as well as the output energy (at 10% of maximum energy, pulse duration will be reduced by 50 %).

OPTIONS

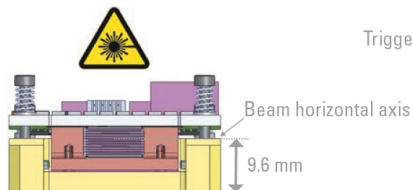
- EXTERNAL POWER SUPPLY
- TEC COOLING & FAN / WATER COOLING
- HERMETICALLY SEALED HOUSING
- OTHER WAVELENGTHS WITH LESS ENERGY: 635 nm / 760 nm / 940 nm / 1.55 μm

DIMENSIONS

HORIZONTAL EMISSION – OPTION 1 (ON-BOARD HV)



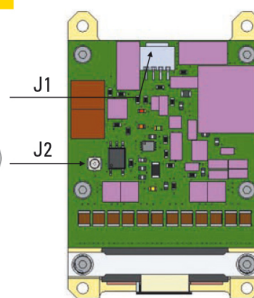
DRAWINGS: PIMK 10694



FRONT VIEW

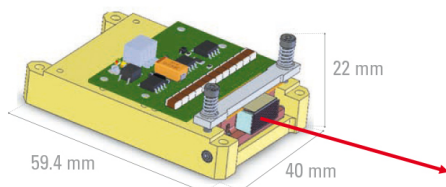
General voltage: 24 V
Energy adjustment
voltage: 0-5 V

Trigger input (5 V TTL)

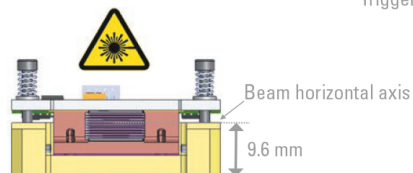


TOP VIEW

HORIZONTAL EMISSION – OPTION 2 (EXTERNAL HV)

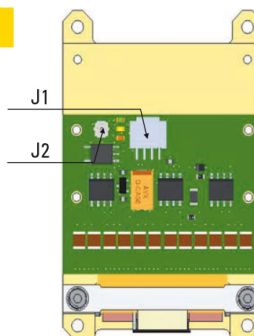


DRAWINGS: PIMK 10704



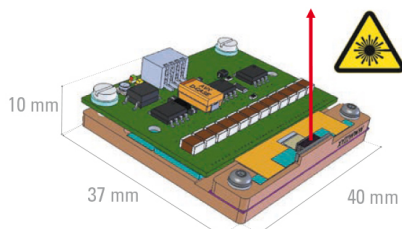
FRONT VIEW

Low voltage: 15 V
High voltage: 0-220 V
Trigger input (5 V TTL)



TOP VIEW

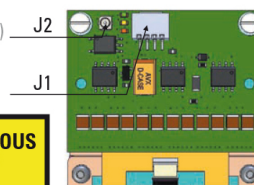
VERTICAL EMISSION – OPTION 2 (EXTERNAL HV)



DRAWINGS: PIMK 10665



Trigger input (5 V TTL)
Low voltage: 15 V
High voltage: 0-220 V



TOP VIEW





 *LUMIBIRD production sites and offices*

LUMIBIRD is one of the world's leading specialists in lasers.

With 50 years of experience and expertise in 3 key technologies - solid-state lasers, laser diodes and fiber lasers - the group designs, manufactures and markets high performance lasers for the industrial (manufacturing, lidar sensors), scientific (laboratories and universities), medical (ophthalmology) and defense markets.

LUMIBIRD (formerly Quantel-Keopsys group) is listed on the Euronext Stock Exchange and employs 400 people.

The group serves a global customer base, with development and manufacturing facilities in France and the USA and a strong world-wide sales and service network.



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

Lumibird has locations across the globe that are available to provide support for any product, service or inquiry.
Visit www.lumibird.com to connect with any of our global sites.

