Pulsed laser diode illuminator (QD-Qxy24-1L0(4))

Multi-wavelength emission

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 REPERTITION 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 10^6 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
- EXTERNAL BEAM SHAPING
- OTHER WAVELENGTHS WITH LESS ENERGY: 635 nm / 760 nm / 1.55 µm

OUTPUT ENERGY PER WAVELENGTH AT 25°C

<table>
<thead>
<tr>
<th>PULSE WIDTH</th>
<th>5-mm EMISSION WIDTH</th>
<th>10-mm EMISSION WIDTH</th>
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<tbody>
<tr>
<td></td>
<td>5-mm EMISSION WIDTH</td>
<td>10-mm EMISSION WIDTH</td>
</tr>
<tr>
<td></td>
<td>MAXIMUM FREQUENCY</td>
<td>ENERGY PER WAVELENGTH</td>
</tr>
<tr>
<td>130 ns</td>
<td>4 kHz</td>
<td>1 mJ</td>
</tr>
<tr>
<td>100 ns</td>
<td>4 kHz</td>
<td>1 mJ</td>
</tr>
<tr>
<td>80 ns</td>
<td>5 kHz</td>
<td>0.8 mJ</td>
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</tbody>
</table>

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

www.quantel-laser.com
### 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 (RSDF402M) | PT1000 |  
Trigger signal(6) | 4 SMA Jack/Female | Pulse mode, 5 V TTL, 1 ≤ width ≤ 5µs | Frequency up to 10 kHz in burst mode |
**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 10⁶ shots |  
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(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

![Continuous 120 V](image)

38 mm
137 mm
76 mm

**DRAWINGS:** PIMK 10679

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