**CRYLASS GmbH · Ostendstr. 25 · D-12459 Berlin · Fon +49(0)30-53 04 24 00 · Fax +49(0)30-53 04 24 44 · info@crylas.de ·www.crylas.de**

# Crystal Laser Systems

## FQSS 213-50

**Diode pumped passively Q-switched solid state laser**

- **213 nm**
- **single pulse**
- **≤ 1.3 ns**
- **1 – 30 Hz**
- **> 50 µJ @ 20Hz**

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### Optical Data

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wavelength</td>
<td>213 nm</td>
</tr>
<tr>
<td>Beam Divergence (full angle)</td>
<td>&lt; 1.5 mrad</td>
</tr>
<tr>
<td>Beam Ellipticity</td>
<td>&lt; 2:1</td>
</tr>
<tr>
<td>Beam Diameter</td>
<td>450 ± 150 µm (at laser exit)</td>
</tr>
<tr>
<td>Peak Power</td>
<td>&gt; 40 kW @ 20 Hz</td>
</tr>
<tr>
<td>Pulse Energy</td>
<td>&gt; 50 µJ @ 20 Hz</td>
</tr>
<tr>
<td>Pulse Repetition Rate (with external trigger)</td>
<td>1 - 30 Hz</td>
</tr>
<tr>
<td>Pulse Width (FWHM)</td>
<td>≤ 1.3 ns</td>
</tr>
<tr>
<td>Polarization Ratio</td>
<td>&gt; 100:1, horizontal</td>
</tr>
<tr>
<td>Long term pulse energy stability (6 hours)</td>
<td>&lt; ± 5 %</td>
</tr>
<tr>
<td>Pulse-To-Pulse Stability</td>
<td>&lt; 3 % rms</td>
</tr>
<tr>
<td>Laser Classification</td>
<td>4 / IV</td>
</tr>
<tr>
<td>Residual Emission (266nm, 532nm, 1064nm)</td>
<td>&lt; 0.2 µJ</td>
</tr>
</tbody>
</table>

### Optical Output

- Free Beam

### Electrical Data

- **Electrical Power Consumption**: < 90 W
- **Line Voltage**: 100 - 240 V AC (50-60 Hz) or 24 V DC

### Interface

- **RS 232, USB**

### Miscellaneous

- **Warm-up Time**: < 10 min
- **Operating Temperature**: 18 - 38 °C
- **Laser Head Size**: 283 x 65 x 45 mm (core dimensions)

### Options

- Manual Shutter or Electrical Beam Blocker
- External Telescope (e.g. M=5)
- Stand Alone system (CDRH compliant; incl. key switch, heat sink, manual beam shutter)

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1) Drift over 6 hours, energy averaged over 10 sec after 5 min of continuous operation, temperature variation < 3 °C/hour.
2) RMS over 1000 pulses after 5 min of continuous operation.
Crystal Laser Systems

Laser Head and Controller

Stand Alone Controller

Laser Safety Labels

The FOSS213-50 lasers is class 4 according to IEC 60825-1:2014

DANGER - INVISIBLE LASER RADIATION
AVOID EYE OR SKIN EXPOSURE TO DIRECT OR SCATTERED RADIATION
CLASS 4 LASER PRODUCT

wavelength: 213 nm
max. output: 100 µJ
pulse duration: <1.6 ns
max. repetition rate: 60 Hz

Compiles with IEC 60825-1:2014
Compiles with 21 CFR 1040.10 and 1040.11
except for deviations pursuant to Laser Notice No. 50, dated July 28, 2001

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