

# FTSS 355-Q

Diode Pumped Passively Q-Switched Solid State Laser

- 355 nm
- Pulsed ( $\leq 1.4$  ns)
- $> 42\mu\text{J}$
- Up to 20 kHz
- External and Internal Trigger
- Free Beam or Fiber Coupling
- Single Pulse Operation



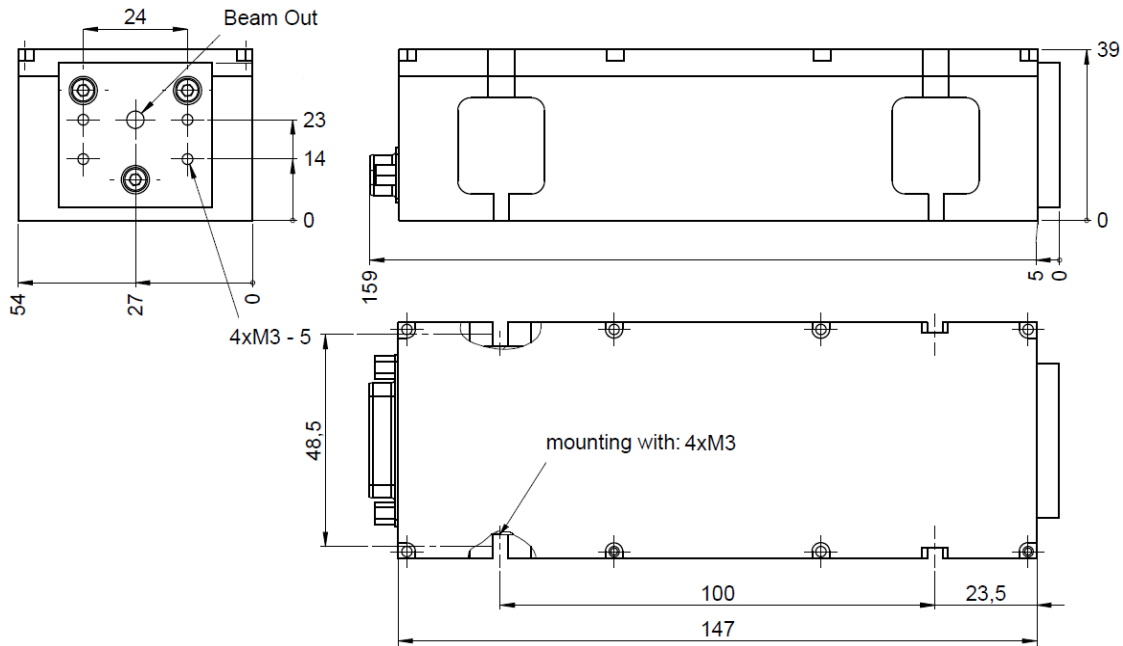
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| Optical Data    |   | FTSS355-Q1                 | FTSS355-Q2                | FTSS355-Q3               | FTSS355-Q4_1k            |
|-----------------|---|----------------------------|---------------------------|--------------------------|--------------------------|
|                 | Wavelength  | 355 nm                     |                           |                          |                          |
|                 | Pulse Energy  | $> 0.3 \mu\text{J}$ @15kHz | $> 3 \mu\text{J}$ @10kHz  | $> 15 \mu\text{J}$ @1kHz | $> 42 \mu\text{J}$ @1kHz |
|                 | Peak Power  | $> 0.27\text{kW}$ @15kHz   | $> 2.7 \text{ kW}$ @10kHz | $> 13 \text{ kW}$ @1kHz  | $> 30 \text{ kW}$ @1kHz  |
|                 | Pulse Repetition Rate   | $\leq 20$ kHz              | $\leq 10$ kHz             | $\leq 2.5$ kHz           | $\leq 1$ kHz             |
|                 | Pulse Width, FWHM   | $\leq 1.1$ ns              | $\leq 1.1$ ns             | $\leq 1.1$ ns            | $\leq 1.4$ ns            |
|                 | Polarization Ratio  | $> 100:1$ vertical         |                           |                          |                          |
|                 | Pulse Energy Drift <sup>1)</sup>  | $< \pm 5 \%$               | $< \pm 5 \%$              | $< \pm 5 \%$             | $< \pm 5 \%$             |
|                 | Pulse-To-Pulse RMS <sup>2)</sup>  | $< 3\%$ @15kHz             | $< 2\%$ @10kHz            | $< 2\%$ @1kHz            | $< 2\%$ @1kHz            |
|                 | Laser Classification  | 3B / IIIB                  | 3B / IIIB                 | 3B / IIIB                | 3B / IIIB                |
| Optical Output  | Spatial Mode  | TEM <sub>00</sub>          |                           |                          |                          |
|                 | Beam Divergence, $2\Theta$  | $< 3$ mrad                 | $< 3.5$ mrad              | $< 4$ mrad               | $< 4$ mrad               |
|                 | Beam Diameter   | $190 \pm 50 \mu\text{m}$   | $200 \pm 50 \mu\text{m}$  | $200 \pm 50 \mu\text{m}$ | $300 \pm 80 \mu\text{m}$ |
| Electrical Data | Power Consumption   | 15 W (max.40 W)            | 17 W (max.40 W)           | 20 W (max.70 W)          | 40 W (max.70 W)          |
|                 | Operating Voltage   | 12 V DC                    |                           |                          |                          |
|                 | Line Voltage  | 90 - 265 V AC (50 – 60 Hz) |                           |                          |                          |
|                 | Marking   | CE                         |                           |                          |                          |
| Interfaces      | RS 232, USB   |                            |                           |                          |                          |
|                 | External Trigger (TTL, rising edge) single shot (pulse on demand) – max. repetition rate                                |                            |                           |                          |                          |
|                 | Interface for TTL-control and power monitor   |                            |                           |                          |                          |
| Miscellaneous   | Warm-up Time  | $< 5$ min                  |                           |                          |                          |
|                 | Operating Temperature   | 18 - 38 °C                 |                           |                          |                          |
| Options         | Stand-alone system (incl. key-switch, heat-sink and manual shutter; CDRH compliant)                                     |                            |                           |                          |                          |
|                 | Synchronization signal output (rise time $< 2$ ns)  |                            |                           |                          |                          |
|                 | Manual shutter or electrical beam blocker   |                            |                           |                          |                          |
|                 | External beam expander (e.g. 3x)  |                            |                           |                          |                          |
|                 | Manual or electrical attenuator on request  |                            |                           |                          |                          |
|                 | Manual or electrical driven wavelength switch 355 nm / 532 nm   |                            |                           |                          |                          |
|                 | Fiber coupling for fiber with core diameter $\geq 100 \mu\text{m}$<br>Closed loop operation for pulse energy on request |                            |                           |                          |                          |

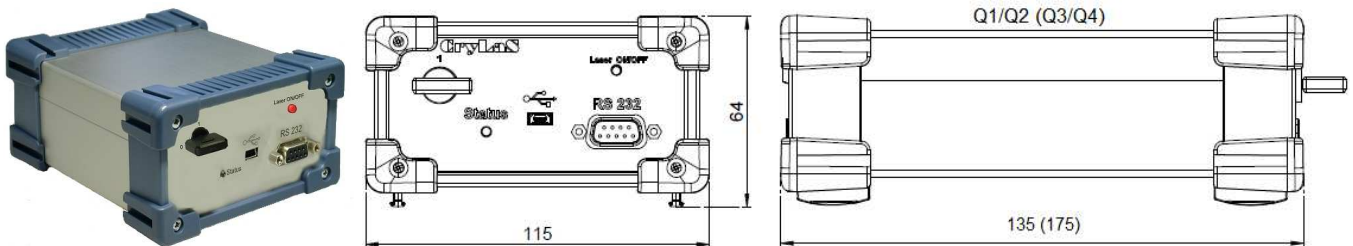
<sup>1)</sup> Drift over 6 hours, energy averaged over 10 sec after 5 min of continuous operation, temperature variation  $\pm 3$  °C and  $< 3$  °C/hour.  
<sup>2)</sup> RMS over 1000 pulses after 5 min of continuous operation.

## Dimensions

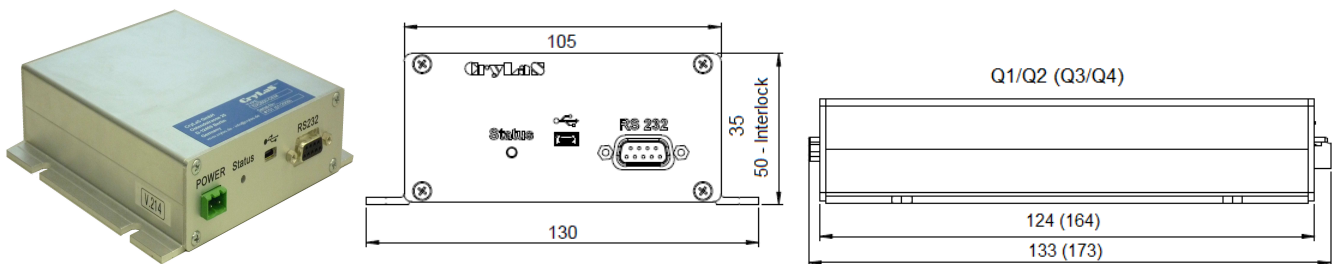
Laser Head: 159 x 54 x 39 mm



Controller Stand-Alone: Q1, Q2: 135 x 115 x 64 mm; Q3, Q4: 175 x 115 x 64 mm



Controller OEM: Q1, Q2: 133 x 130 x 35/50 mm; Q3, Q4: 173 x 130 x 35/50 mm



## Laser Safety Labels

The FTSS355-Q lasers are class 3B / III b according to IEC 60825-1:2007

|  |   |  |   |   |
|--|---|--|---|---|
| <p>wavelength: 355 nm<br/>max. output: 2.5 µJ<br/>pulse duration: &lt; 1.1 ns<br/>max. repetition rate: 20 kHz</p> <p>Complies with IEC 60825-1:2007<br/>Complies with 21 CFR 1040.10 and 1040.11<br/>except for deviations pursuant to<br/>Laser Notice Nr. 50, dated July 26, 2001</p> | <p>wavelength: 355 nm<br/>max. output: 20 µJ<br/>pulse duration: &lt; 1.1 ns<br/>max. repetition rate: 10 kHz</p> <p>Complies with IEC 60825-1:2007<br/>Complies with 21 CFR 1040.10 and 1040.11<br/>except for deviations pursuant to<br/>Laser Notice Nr. 50, dated July 26, 2001</p> | <p>wavelength: 355 nm<br/>max. output: 80 µJ<br/>pulse duration: &lt; 1.1 ns<br/>max. repetition rate: 2.5 kHz</p> <p>Complies with IEC 60825-1:2007<br/>Complies with 21 CFR 1040.10 and 1040.11<br/>except for deviations pursuant to<br/>Laser Notice Nr. 50, dated July 26, 2001</p> | <p>wavelength: 355 nm<br/>max. output: 200 µJ<br/>pulse duration: &lt; 1.4 ns<br/>max. repetition rate: 1.2 kHz</p> <p>Complies with IEC 60825-1:2007<br/>Complies with 21 CFR 1040.10 and 1040.11<br/>except for deviations pursuant to<br/>Laser Notice Nr. 50, dated July 26, 2001</p> | <p><b>INVISIBLE<br/>LASER RADIATION<br/>AVOID EXPOSURE<br/>TO BEAM<br/>CLASS 3B LASER<br/>PRODUCT</b></p> |
|--|---|--|---|---|

Q1 series

Q2 series

Q3 series

Q4 serie

