

# 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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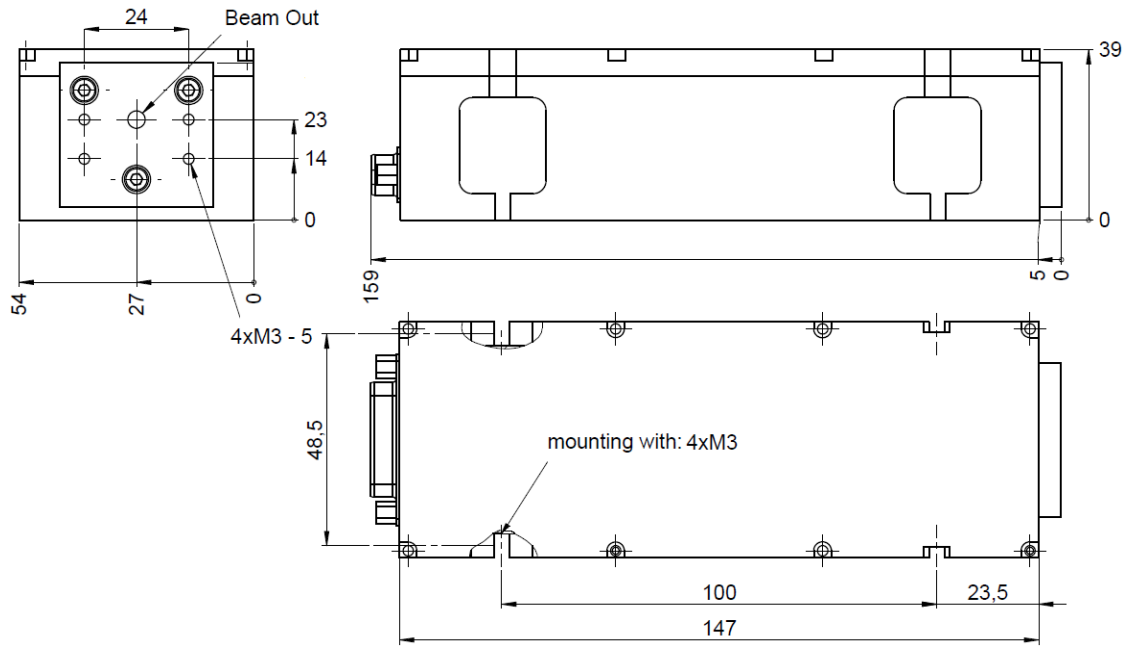
Optical Data		FTSS355-Q1	FTSS355-Q2	FTSS355-Q3	FTSS355-Q4_1k
	Wavelength	355 nm			
	Pulse Energy	$> 0.3 \mu\text{J} @ 15\text{kHz}$	$> 3 \mu\text{J} @ 10\text{kHz}$	$> 15 \mu\text{J} @ 1\text{kHz}$	$> 42 \mu\text{J} @ 1\text{kHz}$
	Peak Power	$> 0.27\text{kW} @ 15\text{kHz}$	$> 2.7 \text{kW} @ 10\text{kHz}$	$> 13 \text{kW} @ 1\text{kHz}$	$> 30 \text{kW} @ 1\text{kHz}$
	Pulse Repetition Rate	$\leq 20 \text{kHz}$	$\leq 10 \text{kHz}$	$\leq 2.5 \text{kHz}$	$\leq 1 \text{kHz}$
	Pulse Width, FWHM	$\leq 1.1 \text{ns}$	$\leq 1.1 \text{ns}$	$\leq 1.1 \text{ns}$	$\leq 1.4 \text{ns}$
	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>	$< 3\% @ 15\text{kHz}$	$< 2\% @ 10\text{kHz}$	$< 2\% @ 1\text{kHz}$	$< 2\% @ 1\text{kHz}$
	Laser Classification	3B / IIIB	3B / IIIB	3B / IIIB	3B / IIIB
Optical Output	Spatial Mode	TEM <sub>00</sub> (Main Axis Divergence Ratio $< 1.3$ )			
	Beam Divergence, $2\Theta$	$< 3 \text{mrad}$	$< 3.5 \text{mrad}$	$< 4 \text{mrad}$	$< 4 \text{mrad}$
	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	$< 5 \text{min}$			
	Operating Temperature	18 - 38 °C			
Options	Stand-alone system (incl. key-switch, heat-sink and manual shutter; CDRH compliant)				
	Synchronization signal output (rise time $< 2 \text{ns}$ )				
	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 $\geq 100 \mu\text{m}$ 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  $\pm 3 \text{ }^\circ\text{C}$  and  $< 3 \text{ }^\circ\text{C}/\text{hour}$ .

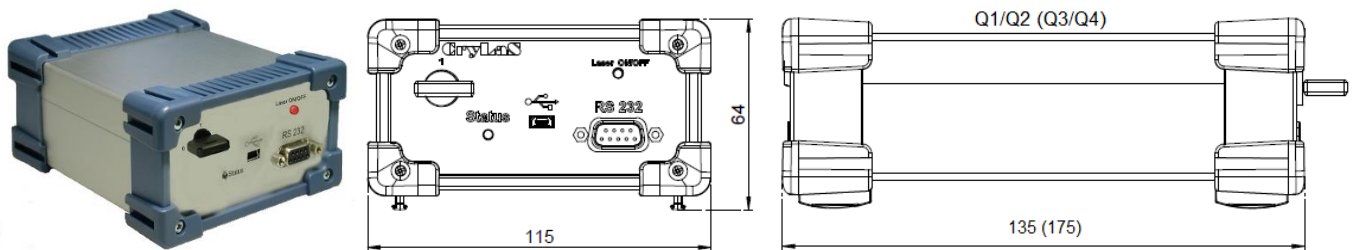
<sup>2)</sup> RMS over 1000 pulses after 5 min of continuous operation.

# Dimensions

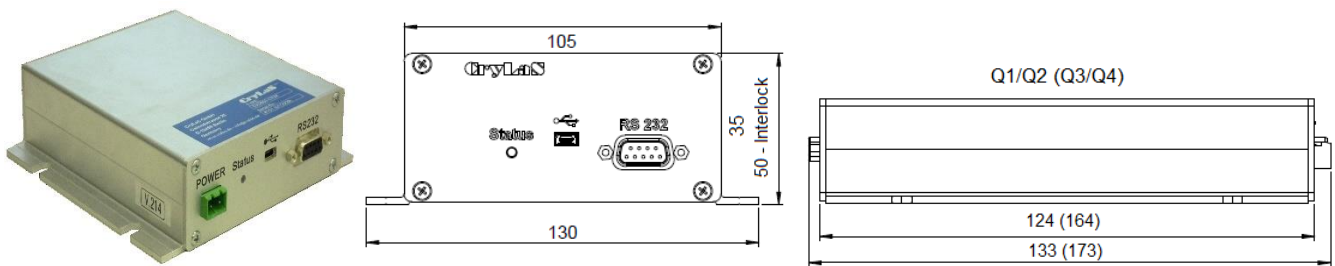
Laser Head: 159 x 54 x 39 mm



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 60825-1:2014

<p>wavelength: 355 nm  max. output: 2.8 µJ  pulse duration: &lt; 1.5 ns  max. repetition rate: 22 kHz</p> <p>Complies with IEC 60825-1:2014  Complies with 21CFR 1040.10 and 1040.11  except for deviations pursuant to  Laser Notice No. 50, dated July 26, 2001</p>	<p>wavelength: 355 nm  max. output: 20 µJ  pulse duration: &lt; 1.5 ns  max. repetition rate: 11 kHz</p> <p>Complies with IEC 60825-1:2014  Complies with 21CFR 1040.10 and 1040.11  except for deviations pursuant to  Laser Notice No. 50, dated July 26, 2001</p>	<p>wavelength: 355 nm  max. output: 80 µJ  pulse duration: &lt; 1.5 ns  max. repetition rate: 2.7 kHz</p> <p>Complies with IEC 60825-1:2014  Complies with 21CFR 1040.10 and 1040.11  except for deviations pursuant to  Laser Notice No. 50, dated July 26, 2001</p>	<p>wavelength: 355 nm  max. output: 200 µJ  pulse duration: &lt; 1.5 ns  max. repetition rate: 1.2 kHz</p> <p>Complies with IEC 60825-1:2014  Complies with 21CFR 1040.10 and 1040.11  except for deviations pursuant to  Laser Notice No. 50, dated July 26, 2001</p>	<p><b>WARNING - INVISIBLE  LASER RADIATION  AVOID EXPOSURE  TO BEAM</b></p> <p><b>CLASS 3B  LASER PRODUCT</b></p>
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Q1 series

Q2 series

Q3 series

Q4 series

