

# FQSS 213-50

Diode pumped passively Q-switched solid state laser

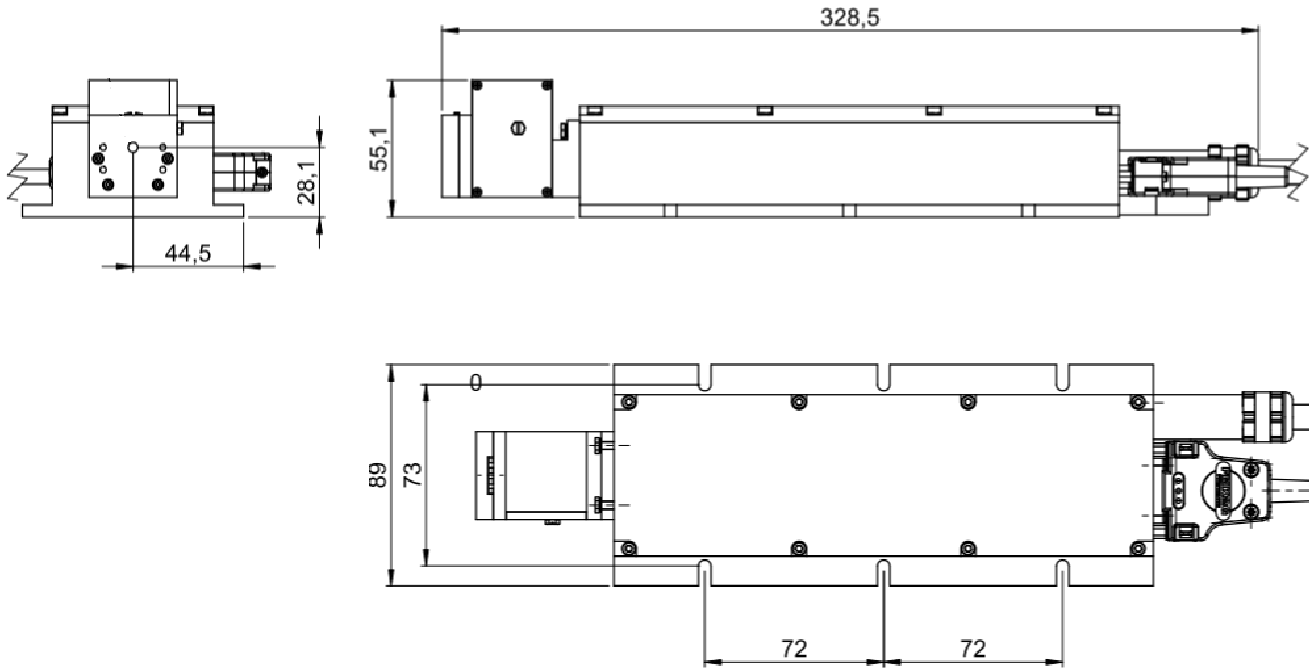
- 213 nm
- single pulse
- 0.9 - 1.3 ns
- 1 – 60 Hz
- > 50 µJ



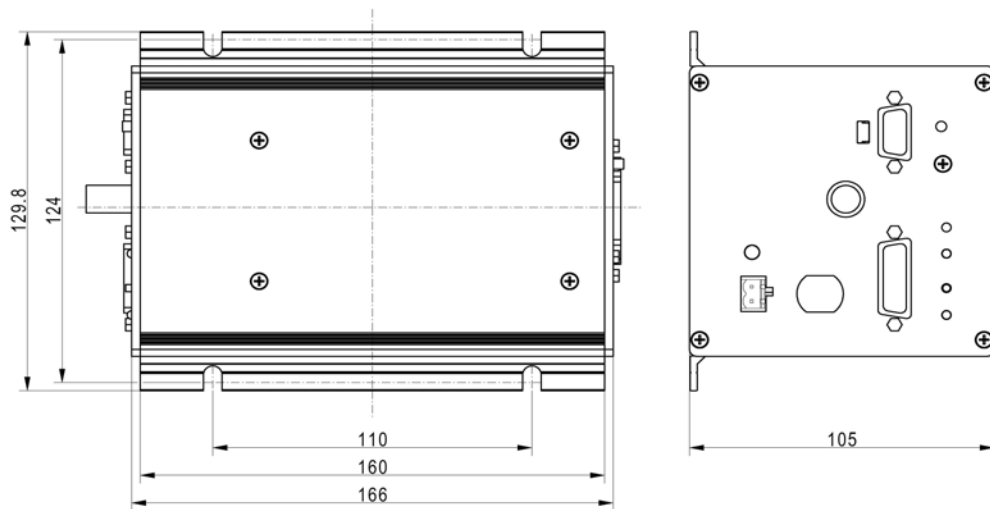
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<b>Optical Data</b>	Wavelength	213 nm
	Spatial Mode	TEM <sub>00</sub>
	M <sup>2</sup>	< 1.5
	Beam Divergence (full angle)	< 3.0 mrad
	Beam Ellipticity	< 2:1
	Beam Diameter	450 ± 150 µm (at laser exit)
	Peak Power	45 kW - 65 kW @ 1 - 60 Hz
	Pulse Energy	> 50 µJ @ 1 - 60 Hz
	Pulse Repetition Rate (with external trigger)	1 - 60 Hz
	Pulse Width (FWHM)	0.9 - 1.3 ns
	Polarization Ratio	> 100:1, horizontal
	Long Term Pulse Energy Stability (6 hrs)	< ± 5 %
	Pulse-To-Pulse Stability	< 2% rms (of pulse energy)
	Laser Classification	4 / IV
Residual 266nm, 532nm, 1064nm Emission	< 0.7 µJ of output pulse energy	
<b>Optical Output</b>	Free Beam	
<b>Electrical Data</b>	Electrical Power Consumption	< 90 W
	Line Voltage	90 - 265 V AC (50-60 Hz) or 24 V DC
<b>Interface</b>	RS 232, USB	
<b>Miscellaneous</b>	Warm-up Time	< 10 min
	Operating Temperature	18 - 38 °C
	Laser Head Size	273 x 65 x 55 mm (core dimensions)
<b>Options</b>	Manual or Electrical Beam Blocker	
	External Telescope (e.g. M=5)	
	Stand Alone System (CDRH compliant)	

## Laser Head and Controller

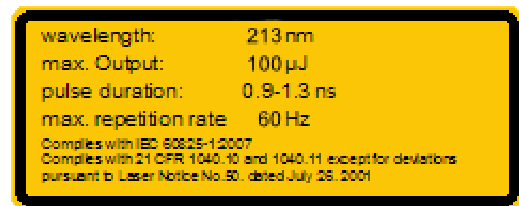
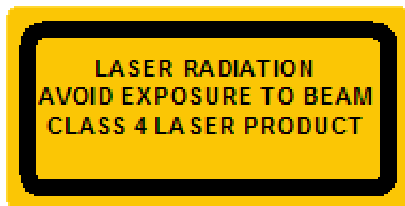


OEM-Controller



## Laser Safety Labels

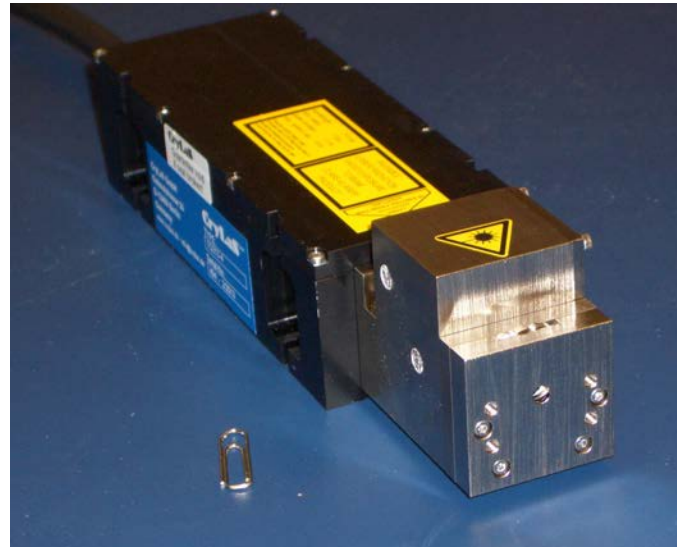
The FQSS213-50 lasers is class 4 according to IEC 60825-1:2007



# FQSS 213-Q4

Diode Pumped Passively Q-Switched Solid State Laser

- 213 nm
- Pulsed ( $\leq 1.0$  ns)
- $> 2.5$   $\mu$ J @ 200 Hz
- Up to 1 kHz
- External and Internal Trigger Mode



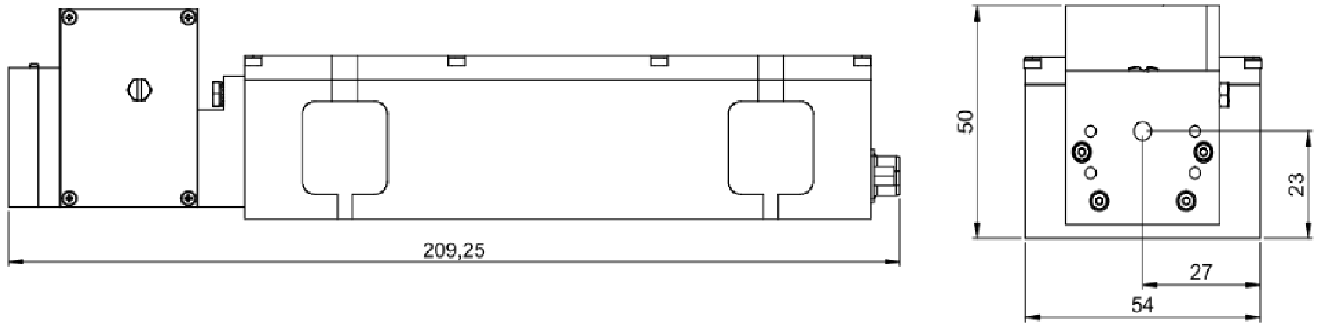
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Optical Data		FQSS213-Q4	FQSS213-Q4_1kHz
	Wavelength	213 nm	
	Pulse Energy	$> 2.5$ $\mu$ J @ 200 Hz	$> 1.5$ $\mu$ J @ 1 kHz
	Peak Power	$> 2.5$ kW @ 200 HZ	$> 1.5$ kW @ 1 kHz
	Max. Pulse Repetition Rate	200 Hz	1 kHz
	Pulse Width (FWHM)	$\leq 1.0$ ns	
	Polarization Ratio	$> 100:1$ vertical	
	Power Stability (%rms; 6 hours) <sup>1)</sup>	$< \pm 5$	
	Laser Classification	4 / IV	
Optical Output	Spatial Mode	TEM <sub>00</sub>	
	Beam Divergence (full angle)	$< 2.5$ mrad	
	Beam Diameter at Output Plane	$400 \pm 200$ $\mu$ m	$400 \pm 200$ $\mu$ m
Electrical Data	Power Consumption mean (max.)	15 W (40 W)	20 W (70 W)
	Operating Voltage (OEM)	12 V DC	
	Line Voltage (with AC-DC adapter)	90 - 265 V AC (50 - 60 Hz)	
	Marking	CE	
Interfaces	RS 232, USB		
	External Trigger (TTL, rising edge) 1 Hz - 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, manual shutter; CDRH compliant)		
	Manual or Electrical Beam Blocker		

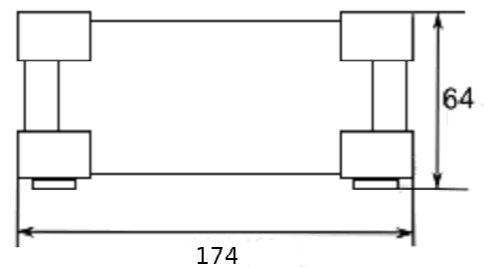
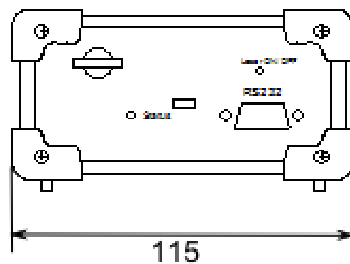
<sup>1)</sup> after 5 min warm up, temperature variation  $\pm 3$  °C and  $< 3$  °C/hour

## Dimensions

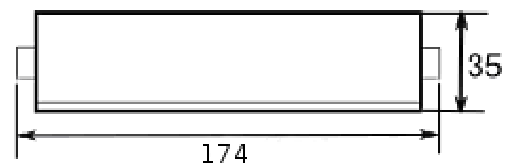
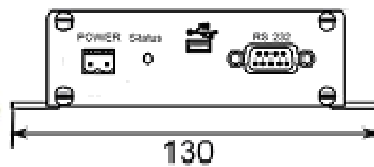
Laser Head: 209,25 x 54 x 50 mm



Controller STAND ALONE: 174 x 115 x 64 mm



Controller OEM: 174 x 130 x 35 mm



## Laser Safety Label

The FQSS213-Q4 and FQSS213-Q4\_1kHz laser are class IV /4 according to IEC 60825-1:2007

wavelength: 213 nm max. output: 10 µJ pulse duration: < 1 ns max. repetition rate: 200 Hz  <small>Complies with IEC 60825.1 (October 2007)                  Complies with 21 CFR 1040.10 and 1040.11                  except for deviations pursuant to                  Laser Notice No. 50, dated July 26, 2001</small>	<b>INVISIBLE                  LASER RADIATION                  AVOID EXPOSURE                  TO BEAM                  CLASS 4 LASER                  PRODUCT</b>
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wavelength: 213 nm max. output: 10 µJ pulse duration: < 1 ns max. repetition rate: 1 kHz  <small>Complies with IEC 60825.1 (October 2007)                  Complies with 21 CFR 1040.10 and 1040.11                  except for deviations pursuant to                  Laser Notice No. 50, dated July 26, 2001</small>	<b>INVISIBLE                  LASER RADIATION                  AVOID EXPOSURE                  TO BEAM                  CLASS 4 LASER                  PRODUCT</b>
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FQSS213-Q4

Q4 series

FQSS213-Q4\_1kHz

