



Technical data sealed CO₂ lasers – specification

	SR 10i (PP) 10.25µm
Laser beam data	
Wavelength ⁽¹⁾	10.25µm
Excitation	RF
Output power	
Power range (rated) ⁽²⁾	5 – 110W
Typical stability (long term) ⁽³⁾	± 4.5% without power feedback, ± 1% with power feedback
Peak power ⁽⁴⁾	275W
Minimum shipment power ⁽²⁾	132W
Laser beam quality	
Diameter @ (1/e ²) (at laser o/p optic)	6.0 ± 0.5mm
Beam quality factor	M ² < 1.2 (K > 0.83)
Divergence (full angle far field)	< 2mrad
Pointing stability (half angle)	< 0.25mrad
Polarisation	Linear (parallel to base), purity > 100:1
Ellipticity	< 1.2 : 1
RF input requirements	
DC input voltage	50VDC ± 1%
Maximum average DC input current ⁽⁵⁾	48A
Maximum peak DC input current	80A
Maximum average power consumption ⁽⁶⁾	2.4kW
Pulsed mode	
Frequency	0 – 130kHz
Pulse width	2 – 400µs
Energy	5 - 90mJ
Optical pulse rise/fall	< 60µs
Duty cycle (max)	60%
Dimensions and weights	
Laser head/RF	(LxWxH) 659x198x222 (mm) 22kg
External control facilities	
Laser head	Commands from external controller Status signal to external controller
DC Electrical ratings	
Input voltage range	230VAC ± 10% 50/60Hz. Single or bi-phase
Input current (max)	12A @ 230V
External fusing requirement	16A @ 230V
Output voltage	50V
Maximum output current	48A
Maximum output power ⁽⁶⁾	2.4kW
Earth leakage current	<2mA

Cooling

Minimum flow rate	≥ 4L/min
Recommended flow rate	≥ 5L/min
Refrigeration capacity	> 2.6kW
Temperature	19°C/66°F to 25°C/77°F ± 1°C (above dew point)

Environmental requirements

Ambient temperature range	5 – 40°C
Relative humidity range	10 – 85% (non-condensing)
Operational altitude	< 2000m

Notes:

¹10.25µm is the predominant wavelength. This can typically vary in the range 10.17µm – 10.33µm.

² Mean average power at maximum duty cycle.

³ Guaranteed stability (long-term) ± 7% without power feedback and ± 2% of rated power with power feedback.

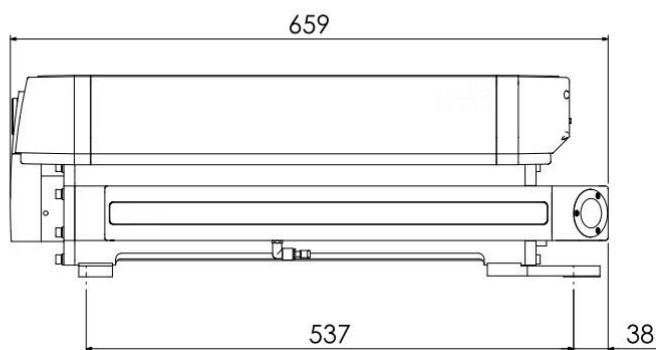
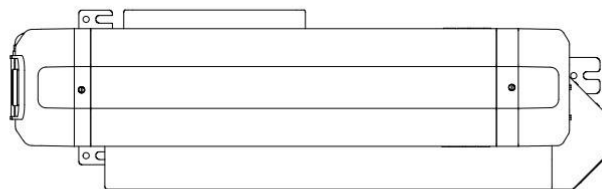
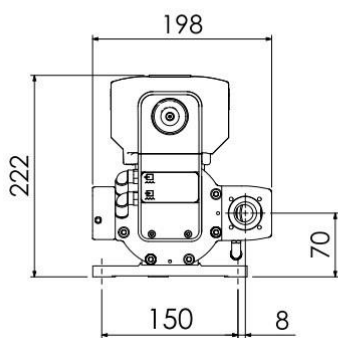
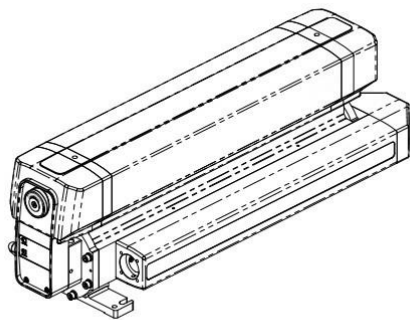
⁴ Depending on frequency.

⁵ 400µs pulse width @ 60% Duty.

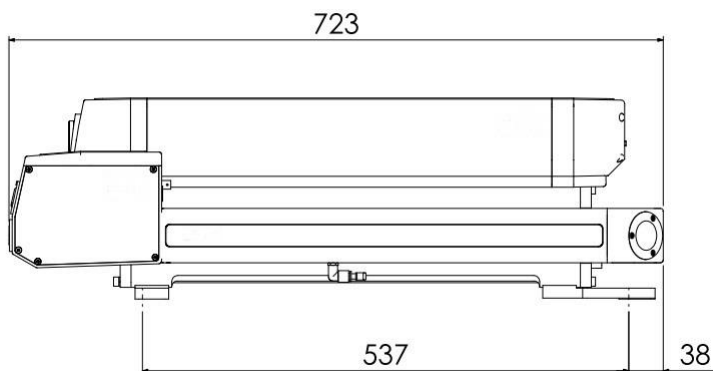
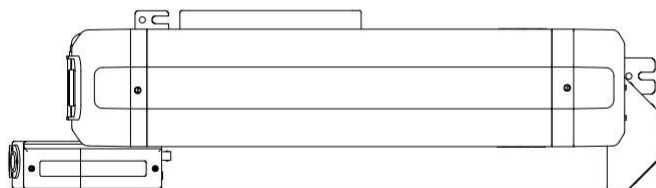
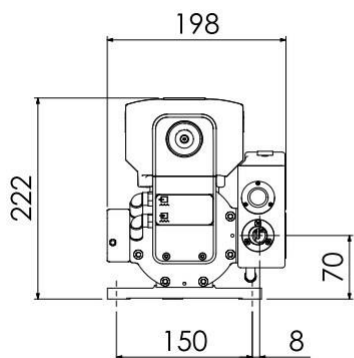
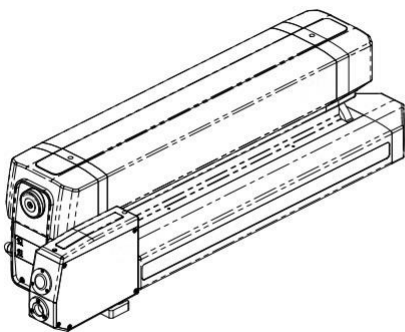
⁶ We recommend using a DC PSU with at least 20% head room on the maximum average power rating.

i.e. DC PSU power= maximum o/p*1.2

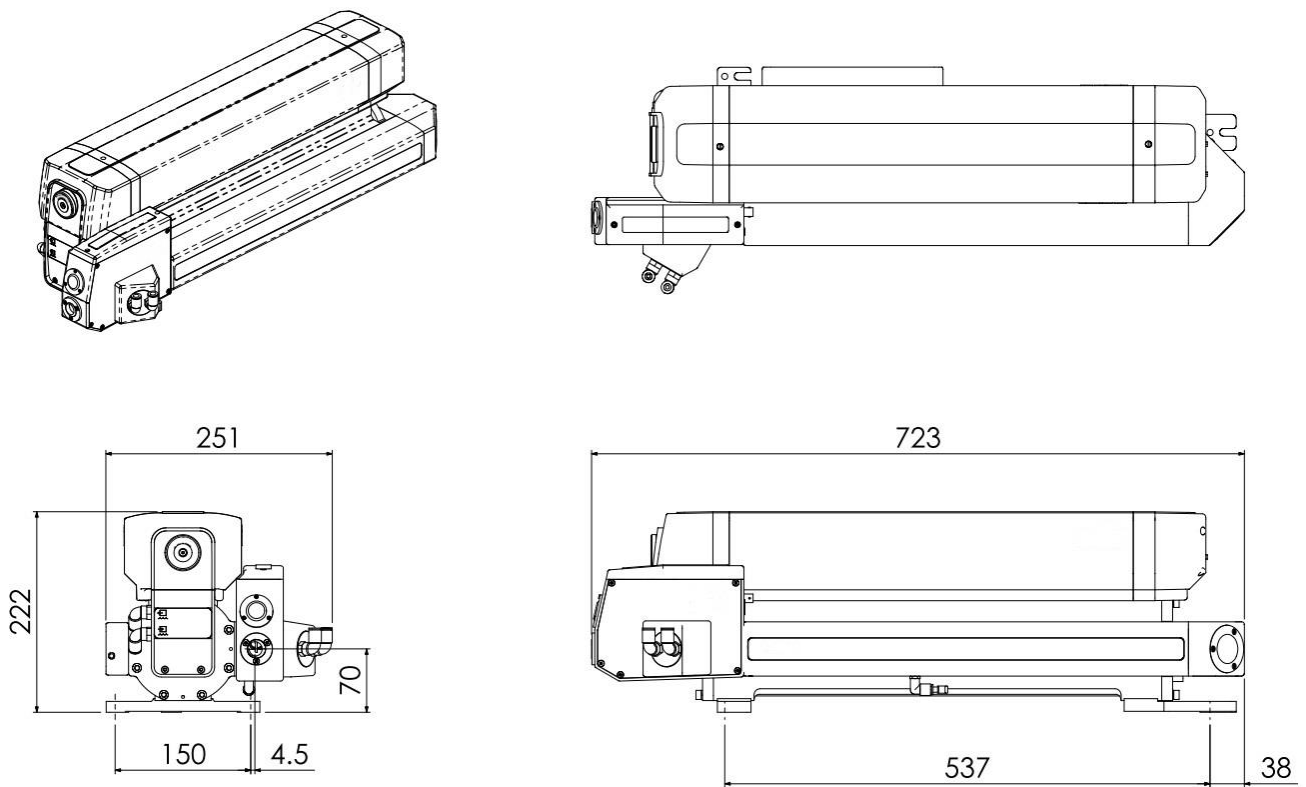
Please note that while every effort has been made to ensure that the data given in this document is accurate, the information, figures, illustrations, tables, specification and schematics contained herein are subject to change without notice



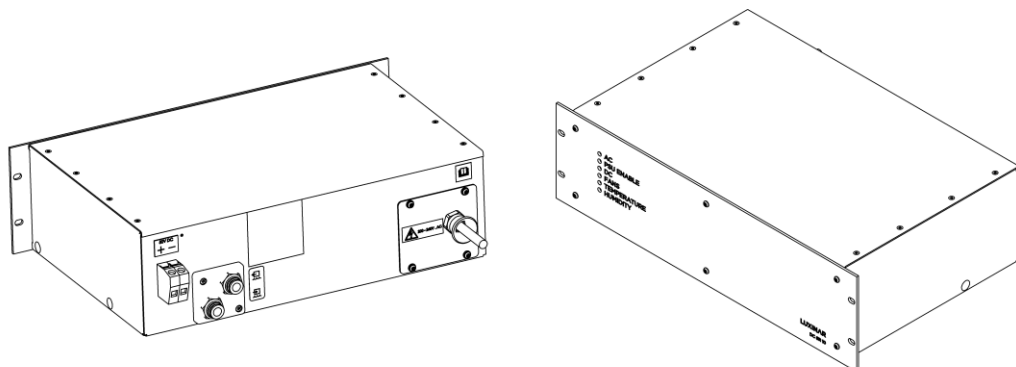
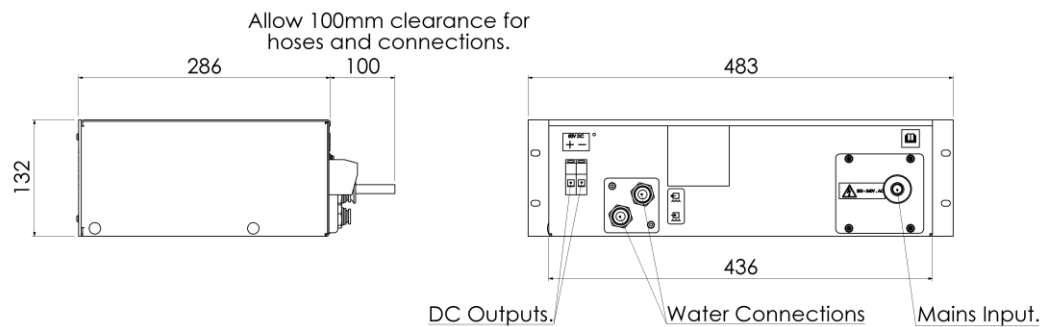
SR 10i



SR 10i – with shutter and diode assembly - optional



SR 10i – with shutter, diode and power feedback assembly – optional



DC power supply – water cooled - 50V - optional



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SR 10i (PP) 10.6μm	
Laser beam data	
Wavelength ⁽¹⁾	10.6μm
Excitation	RF
Output power	
Power range (rated) ⁽²⁾	5 – 125W
Typical stability (long term) ⁽³⁾	± 4.5% without power feedback, ± 1% with power feedback
Peak power ⁽⁴⁾	315W
Minimum shipment power ⁽²⁾	150W
Laser beam quality	
Diameter @ (1/e ²) (at laser o/p optic)	6.0 ± 0.5mm
Beam quality factor	M ² < 1.2 (K > 0.83)
Divergence (full angle far field)	< 2mrad
Pointing stability (half angle)	< 0.25mrad
Polarisation	Linear (parallel to base)
Ellipticity	< 1.2 : 1
RF input requirements	
DC input voltage	50VDC ± 1%
Maximum average DC input current ⁽⁵⁾	48A
Maximum peak DC input current	80A
Maximum average power consumption ⁽⁶⁾	2.4kW
Pulsed mode	
Frequency	0 – 130kHz
Pulse width	2 – 400μs
Energy	5 – 100mJ
Optical pulse rise/fall	< 60μs
Duty cycle (max)	60%
Dimensions and weights	
Laser head/RF	(LxWxH) 659x198x222 (mm) 22kg
External control facilities	
Laser head	Commands from external controller Status signal to external controller
DC Electrical ratings	
Input voltage range	230VAC ± 10% 50/60Hz. Single or bi-phase
Input current (max)	12A @ 230V
External fusing requirement	16A @ 230V
Output voltage	50V
Maximum output current	48A
Maximum output power ⁽⁶⁾	2.4kW
Earth leakage current	<2mA

Cooling

Minimum flow rate	≥ 4L/min
Recommended flow rate	≥ 5L/min
Refrigeration capacity	> 2.6kW
Temperature	19°C/66°F to 25°C/77°F ± 1°C (above dew point)

Environmental requirements

Ambient temperature range	5 – 40°C
Relative humidity range	10 – 85% (non-condensing)
Operational altitude	< 2000m

Notes:

¹10.6µm is the predominant wavelength. This can typically vary in the range 10.17µm – 10.7µm.

² Mean average power at maximum duty cycle.

³ Guaranteed stability (long-term) ± 7% without power feedback and ± 2% of rated power with power feedback.

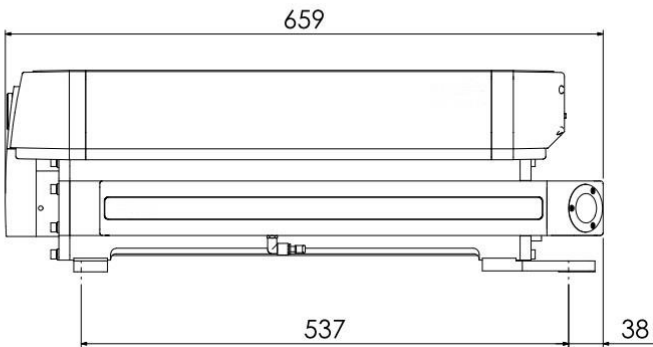
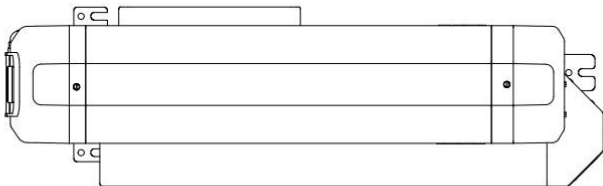
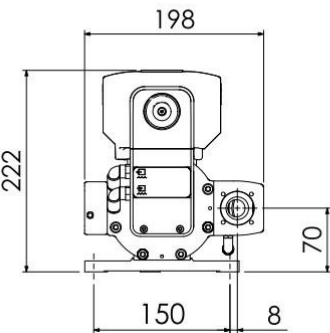
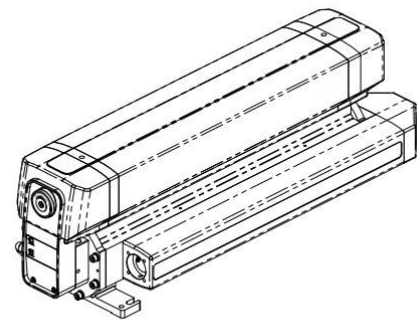
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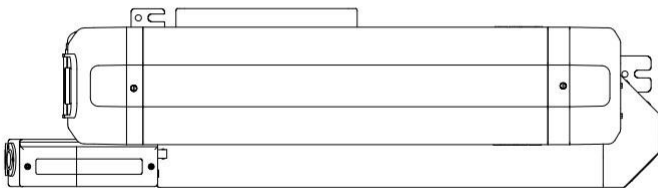
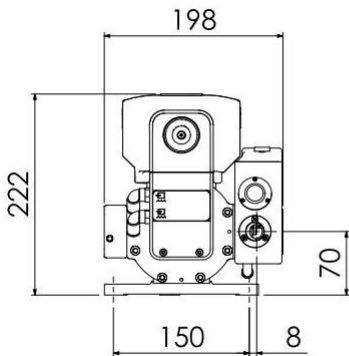
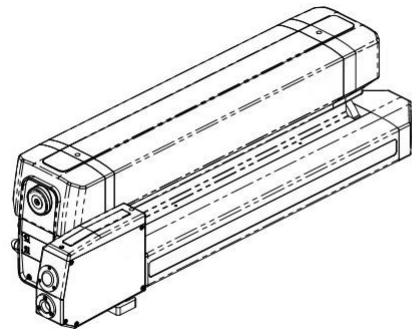
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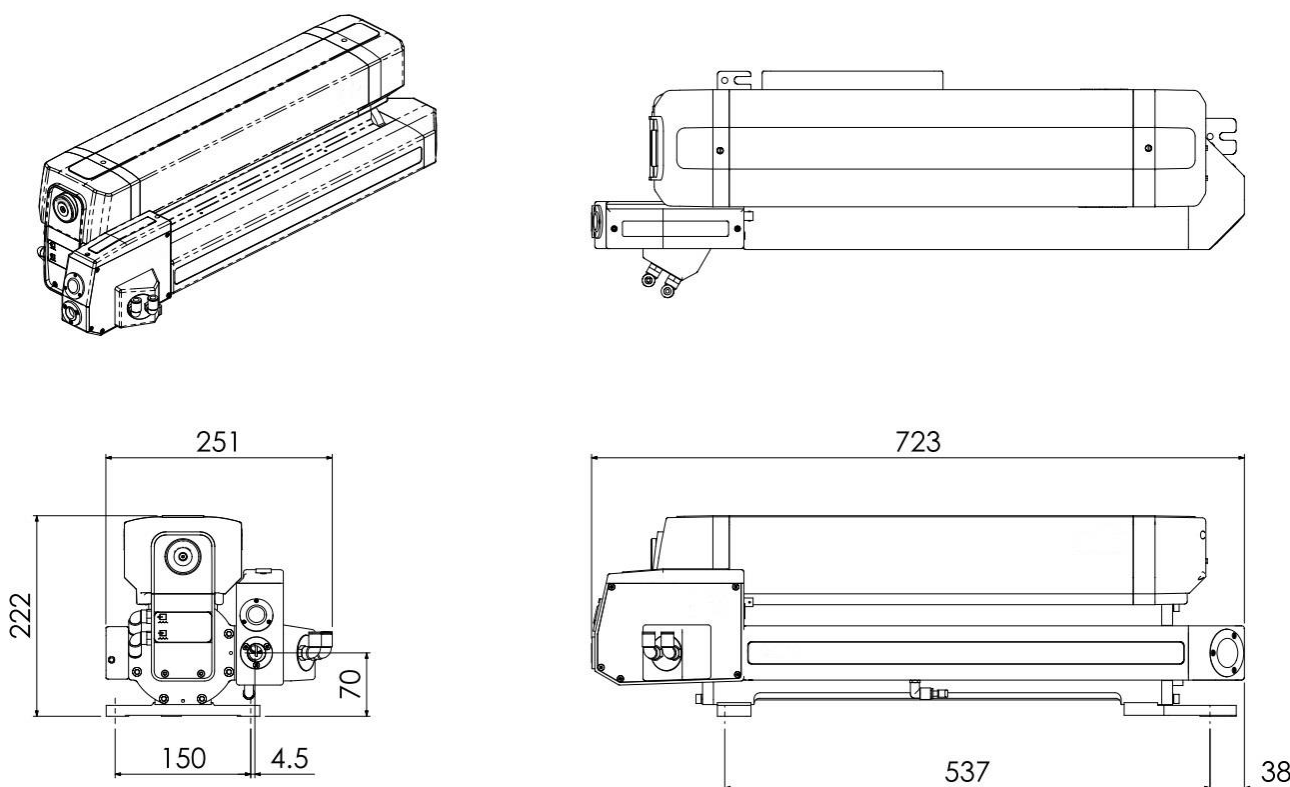
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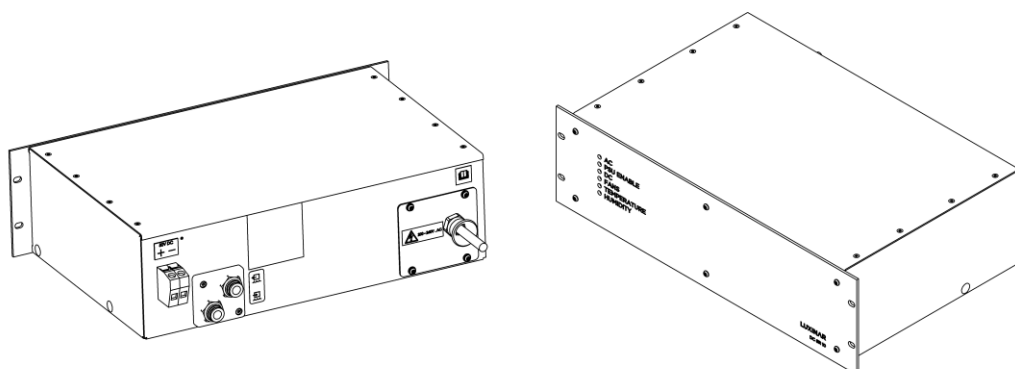
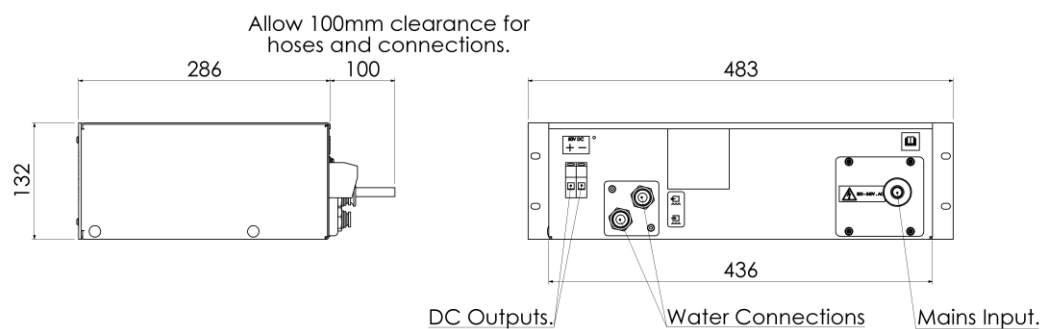
SR 10i



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DC power supply – water cooled - 50V - optional

