

SR AOM CO₂ lasers for high-precision applications



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Technology Stream Manager – Sub-Systems

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About us



We are Luxinar



18000+

Lasers installed
around the world



7500

Square meters of manufacturing
space



20

Years of experience in
CO₂ laser technology



12

Product ranges of sealed
CO₂ laser sources

160+

Employees
worldwide



6

Sales & service
centres globally

100+



Countries where our lasers
are installed



IP66 Rating

Against dust & water
(most lasers)

ISO 9001:2015

Quality management
accreditation



9-11 μm

Wavelengths
in our range



10



Working days to
return your processed
samples

1200

Characters per second
are laser marked by
MULTISCAN

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Introduction to SR AOM series lasers

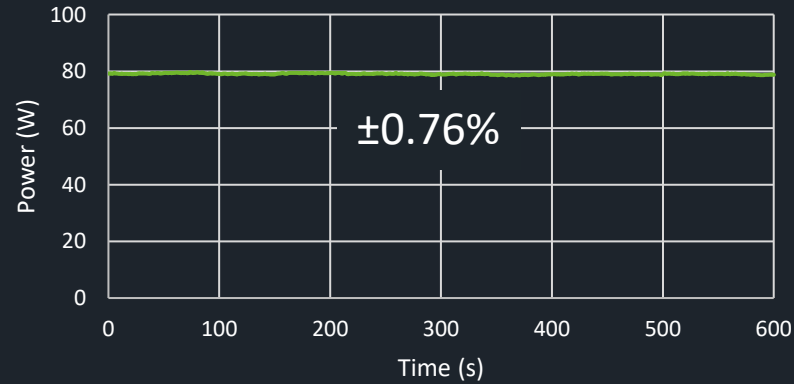
Features & benefits

- Integrated acousto-optic modulator creates fast optical rise and fall times $< 1\mu\text{s}$ to minimise heat affected zone (HAZ)
- Wavelength: $9.3\mu\text{m}$
- Two power levels: 75W (SR 10 AOM) and 150W (SR 25 AOM)
- Higher quality cutting edge compared to standard pulsed CO_2 lasers for high precision applications
- Stabilised output power & pulse energy

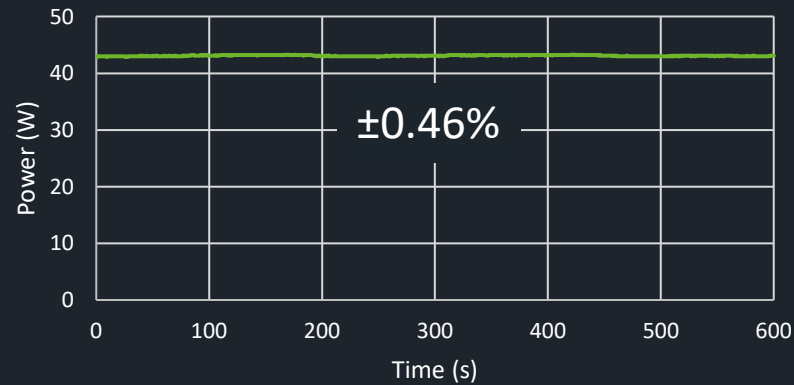


Power stability

SR 25 AOM (50% duty, 25 kHz)

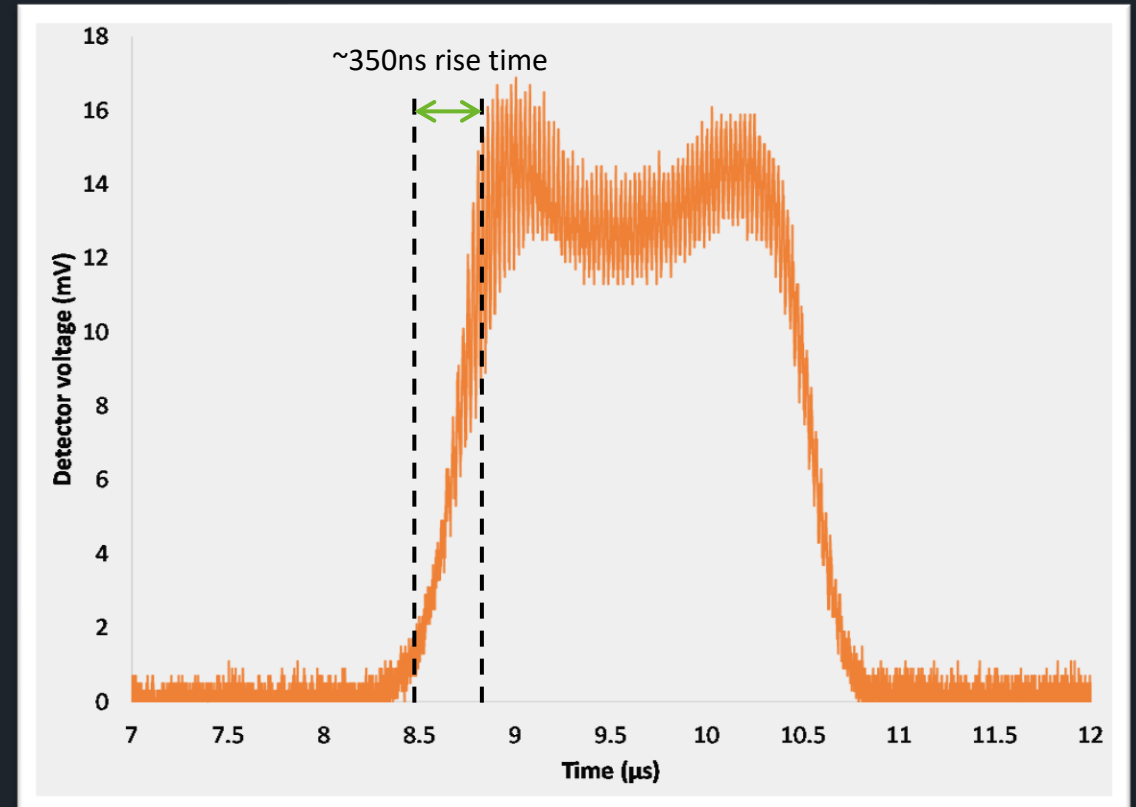


SR 10 AOM (50% duty, 25 kHz)



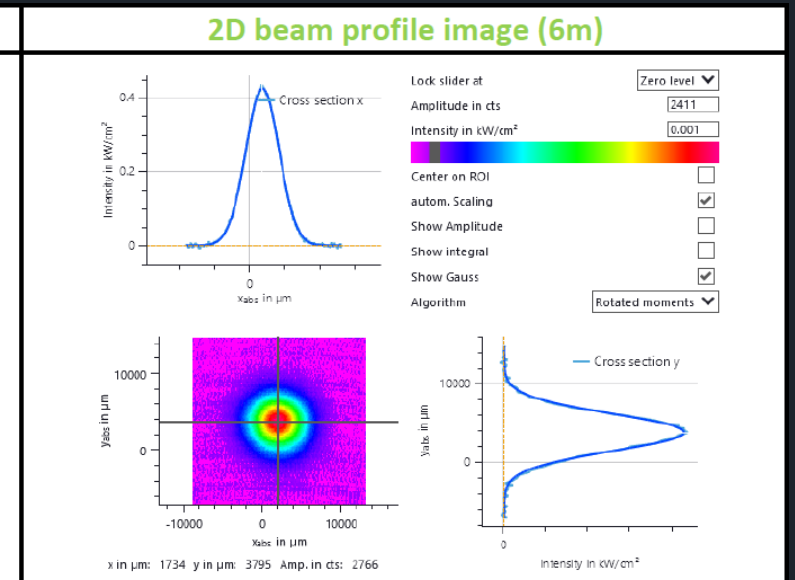
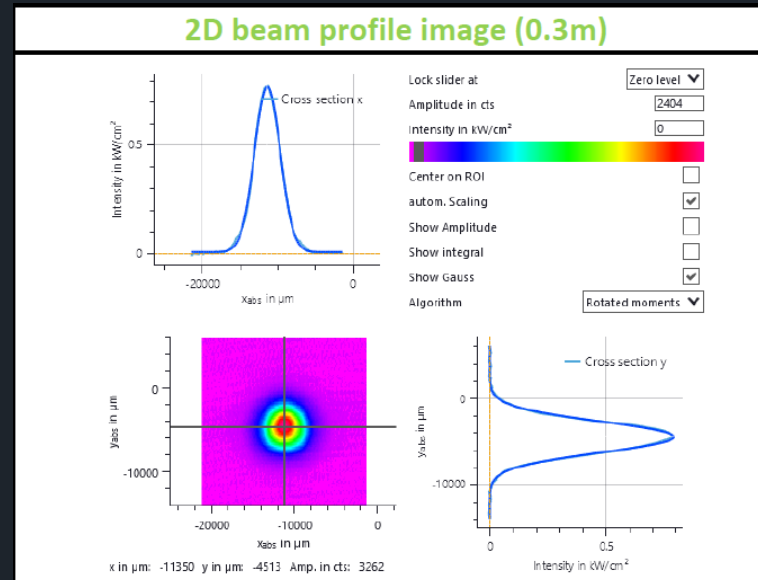
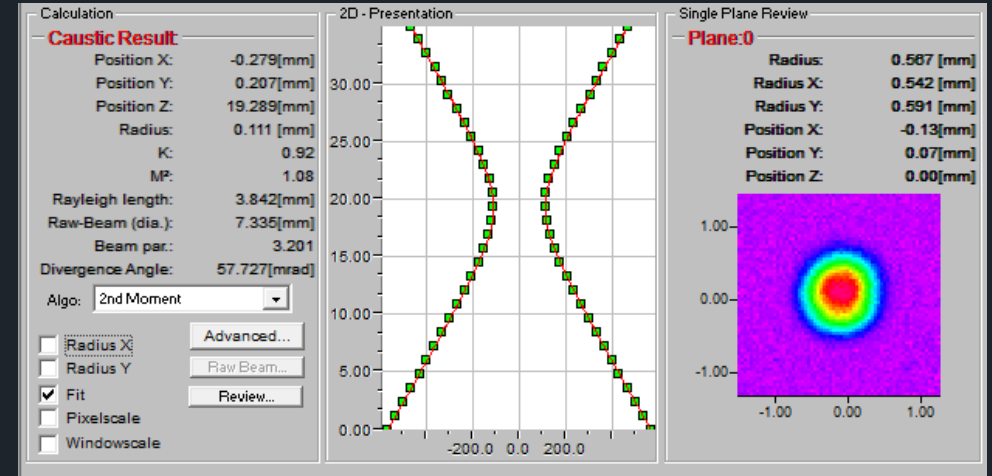
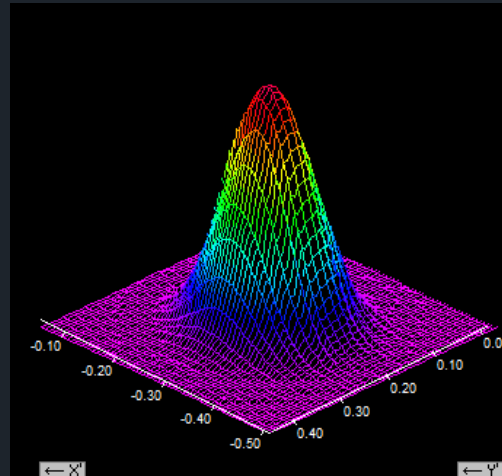
Pulse characteristics

2 μ s demand pulse



Mode quality

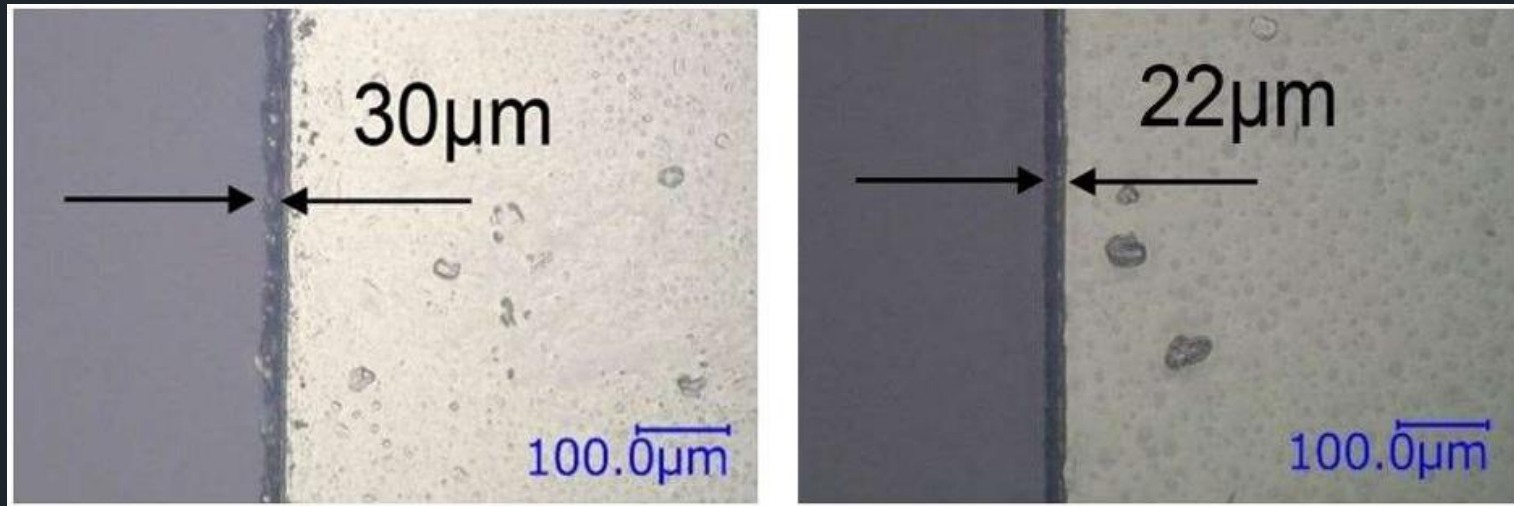
- Beam quality, $M^2 < 1.2$
- Ellipticity $< 1.2: 1$
- Enables high precision machining



SR 10 AOM & SR 25 AOM – sealed CO₂ lasers for high-precision applications needing a reduced HAZ

Benefits

- Optical rise and fall times <1μs to **minimise HAZ** on polarization film (3-layer, 0.23mm thick)



Standard CO₂ laser

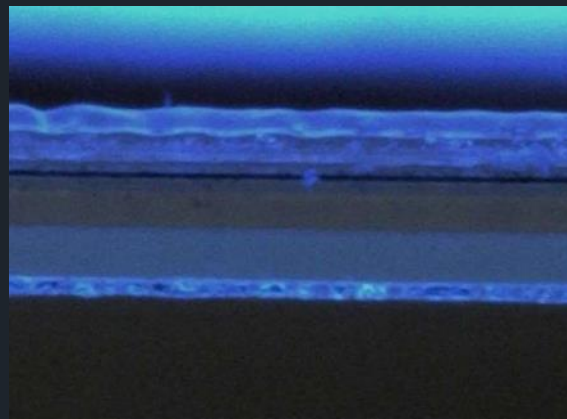
CO₂ laser with AOM

The AOM-integrated CO₂ laser creates approximately **30% less HAZ**

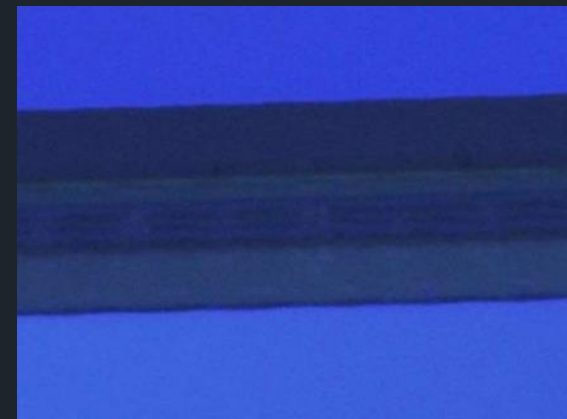
SR 10 AOM & SR 25 AOM – sealed CO₂ lasers for high-precision applications needing a reduced HAZ

Benefits

- **Higher quality cutting** edge compared to standard pulsed CO₂ lasers



Luxinar SCX 30 (9µm)



Luxinar SR 25 AOM (9µm)

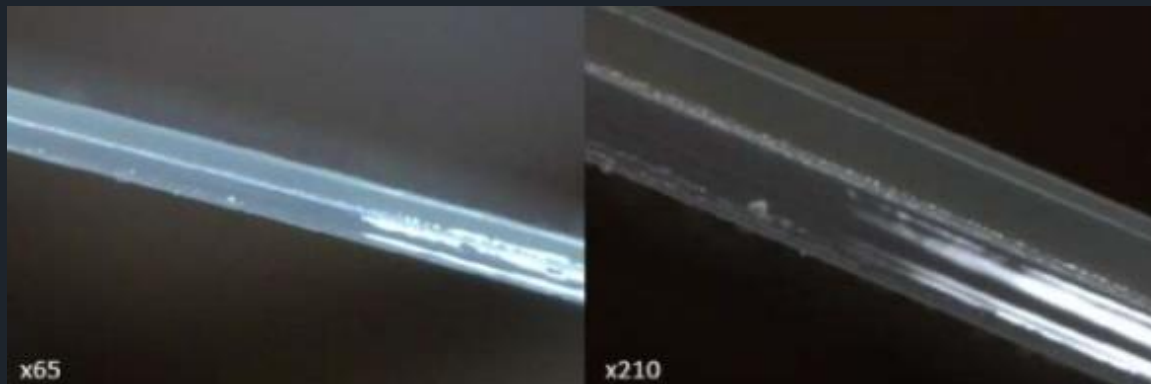
5 layer film (upper protection film 50µm – upper silicone 8µm – touch film 65µm – adhesive silicone 20µm – lower protection film 50µm)

Layers melt and can stick to the neighbouring layers when using pulsed lasers

SR 10 AOM & SR 25 AOM – sealed CO₂ lasers for high-precision applications needing a reduced HAZ

Benefits

- **Higher quality cutting edge** compared to standard pulsed CO₂ lasers

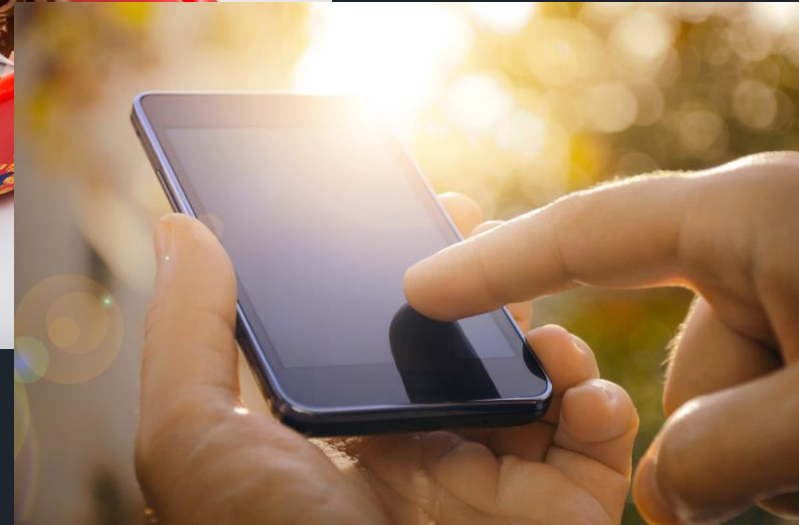
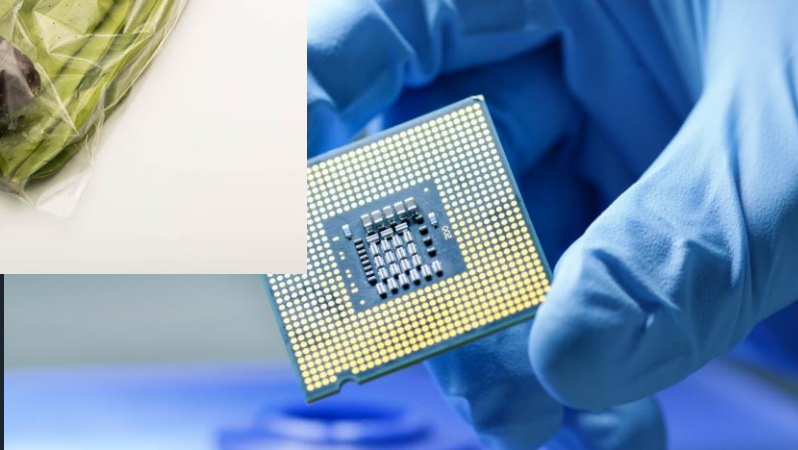


- Heat-sensitive ITO layers in PDLCD film discolour
- SR 25 AOM 9µm system resulted in minimised discoloration as well as an extremely clean cut-edge quality

Edge of the PDLCD film: all layers have been cut without damage and with almost no discoloration with the SR 25 AOM

Applications for SR AOM range

- Microfilm cutting in the flat panel display market, e.g. back-lighting unit (BLU).
- Scribing, engraving, marking and surface patterning applications that need reduced HAZ.
- Other thin film applications, including those in the automotive, electronics, lighting and flexible packaging and flexible printing industries, e.g. kiss-cutting.



SR AOM summary

- Optical pulse rise/fall time $< 1\mu\text{s}$ for high-precision processing, energy control and reduced HAZ
- $9.3\mu\text{m}$ wavelength
- 75W (SR 10 AOM) and 150W (SR 25 AOM) rated powers
- Pulse width $2\mu\text{s}$ to CW
- Power loop control as standard for enhanced stability



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