



3-Axis Scan Head

Modular, with Integrated Z-Axis

Product Highlights

Our 3-axis scan heads, the Lightning™ II and ProSeries 2, feature a Dynamic Focusing Module (DFM) that offers substantial flexibility to system integrators for material processing over large work fields and three-dimensional surfaces. The 3-axis scan head focuses the laser into a small spot, which improves laser processing speed and quality. The DFM ensures the laser spot remains in focus across the entire working field. In addition, the 3-axis scan head can adjust to varying working distances and active field sizes to accommodate different parts to be processed.

The Lightning™ II digital scan head offers the highest speed, accuracy, and stability, and excels at applications such as laser additive manufacturing, converting, and micromachining that require high stability over a 24+ hour period. The ProSeries 2 analog scan head is a cost-effective solution for applications such as scribing, micromachining, rapid manufacturing, and solar. We offer a variety of optics options and mirror coatings for lasers ranging from UV to IR wavelengths.

Increase your system's flexibility and field size with 3-axis scan heads

- Industry's highest-precision scanning speed for maximum throughput
- Robust, versatile system that easily switches from job to job
- Range of options available for processing specific material-type
- System stability and reliability reduce production downtime

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3-Axis Scan Head for CO₂ Lasers (λ: 10.6 μm, 9.4 μm)

General				Spot Size (μm) ¹				Tracking Error (ms)
Mirror Aperture Size	Product Family	Field Size Range (mm x mm)	Input Aperture Size (mm)	Field Size 200 x 200 mm	Field Size 500 x 500 mm	Field Size 750 x 750 mm	Field Size 1000 x 1000 mm	
30 mm	Lightning II	100-1000	17	213	465	670	881	0.2
	ProSeries 2							0.4
50 mm	Lightning II	100-1000	17	149	300	426	553	0.4
	ProSeries 2							1.0

3-Axis Scan Head for Fiber/YAG Lasers (λ: 1060 nm - 1090 nm)

General				Spot Size (μm) ¹				Tracking Error (ms)
Mirror Aperture Size	Product Family	Field Size Range (mm x mm)	Input Aperture Size (mm)	Field Size 100 x 100 mm	Field Size 400 x 400 mm	Field Size 750 x 750 mm	Field Size 1000 x 1000 mm	
30 mm	Lightning II	100-1200	10	13	37	66	87	0.2
	ProSeries 2							0.4
50 mm	Lightning II	100-1200	20	10	25	43	56	0.4
	ProSeries 2							1.0

3-Axis Scan Head for Other Lasers (λ: 355 nm)

General				Spot Size (μm) ¹				Tracking Error (ms)
Wavelength (Mirror Aperture Size)	Product Family	Field Size Range (mm x mm)	Input Aperture Size (mm)	Field Size 200 x 200 mm	Field Size 400 x 400 mm	Field Size 600 x 600 mm	Field Size 800 x 800 mm	
355 nm (20 mm)	Lightning II	200-2500	1-3	10	18	23	30	0.2
523 nm (20 mm)			2-3	15	32	39	53	0.2

Note:

All specifications are subject to change without notice.

Reference:

1. Spot sizes are calculated assuming M² value of 1.0.

About Cambridge Technology

With close to 50 years of expertise, Cambridge Technology designs, develops, and manufactures innovative beam steering solutions including polygon- and galvanometer-based optical scanning components, 2-axis and 3-axis scan heads, scanning subsystems, high power scanning heads, and controlling hardware and software. We excel in collaborating with our key OEM partners to engineer products that meet their needs from the largest engineering solution to the smallest component. Key market applications include advanced industrial processes like additive manufacturing, laser converting, laser marking, and via-hole drilling, and medical applications such as laser treatment and optical coherence tomography. Cambridge Technology is a Novanta company.

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