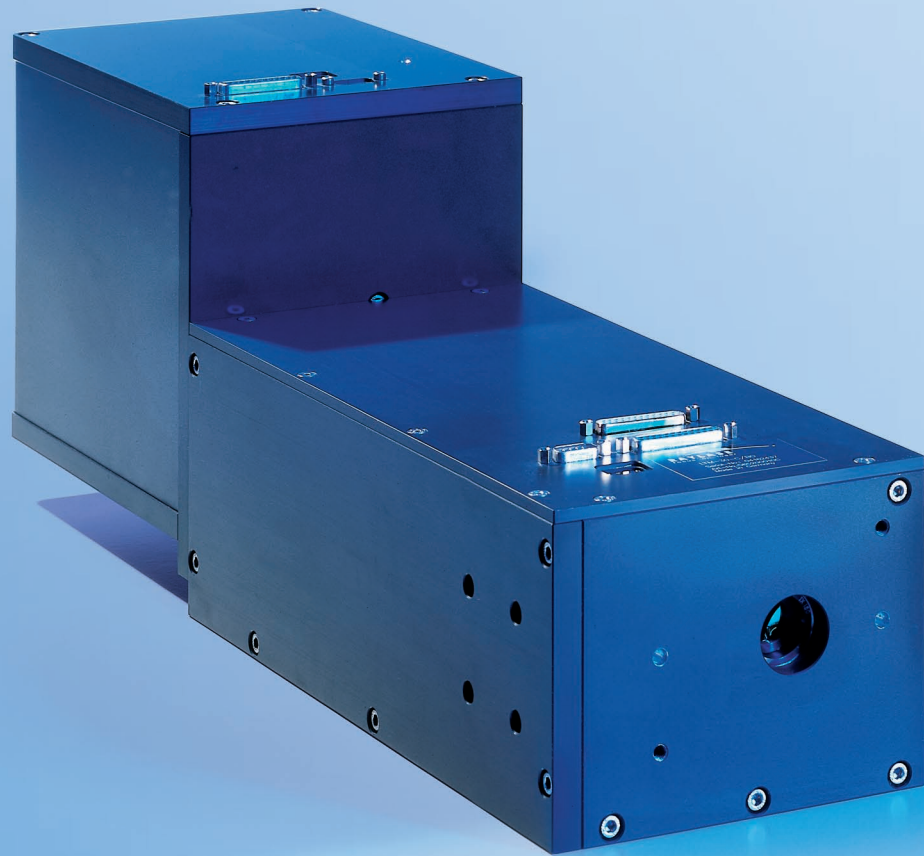


**3-AXIS LASER BEAM SUBSYSTEMS**

# AXIALSCAN



## Flexible Wide Field Processing with Smallest Spot Diameter

- Variable, easy to adjust working fields
- Modular and compact design for easy integration
- Robust and dust proof (CE) for industrial conditions
- Customized solutions
- Outstanding price/performance ratio

# 3-AXIS LASER BEAM SUBSYSTEMS

# AXIALSCAN

## ● DESIGN

The AXIALSCAN subsystems offer very small spot diameters at large field sizes, flexibility, high scanning speeds, long-term stability and low drift values for superior quality standards. This combination results in high power density in the spot, enabling new applications and reduced system costs.

The modular, compact, robust and pre-aligned design (CE) makes integration easy.

RAYLASE products combine optimised optics, fine tolerance mechanics, superior electronics and galvanometer scanners.

## ● FIELD SIZES

Subsystems for CO<sub>2</sub> lasers are designed for field sizes from 100 mm x 100 mm up to 1,500 mm x 1,500 mm and for Nd:YAG from 200 mm x 200 mm up to 1,200 mm x 1,200 mm. Field sizes for subsystems of other wavelengths available upon request.

## ● QUALITY

Maintaining high product quality standards is a priority at RAYLASE. Subsystems are shipped to customers only after passing extensive tests.

## ● OPTICS

Objectives, protection windows and mirrors are available for all typical laser types.

## ● AXIALSCAN MOTORIZED

This option of the AXIALSCAN enables motorized adjustment of the size of the operating field steered by stepper motor interface.

## ● OTHER MODELS UPON REQUEST

- AXIALSCAN High Power
- AXIALSCAN High Speed
- AXIALSCAN Low Drift

## ● INTERFACES

The subsystems are electrically and mechanically compatible to the XY2-100 standard. They can be controlled either by a digital interface via the high-speed data link, for example with a SP-ICE card, or by using an analog current or voltage interface.

## ● TYPICAL APPLICATIONS

Material processing (cutting, perforating, welding, drilling), micro machining, processing on the fly, 3D-applications, stereolithography, rapid tooling / manufacturing.

## ● GENERAL SPECIFICATIONS

Power Supply	Voltage	±15 to ±18 V
	Current	7.5 A, RMS, max. 10 A
	Ripple	≤ 100 mV
	Noise	≤ 0.5 % DC to 30 MHz
Ambient Temperature	+15 to +35 °C	

Storage Temperature	-10 to +60 °C	
Humidity	≤ 80 % non condensing	
Weight	approx. 12.0 kg to 13.5 kg	
Interface Signals	Analog	±5 V, ±10 V, 0-10 V, ±20 mA, 0-40 mA
	Digital	XY2-100 Protocol

## ● CONFIGURATION EXAMPLES FOR CO<sub>2</sub> (λ=10,600 NM) AXIALSCAN-30-C/BO, AXIALSCAN-20-C

Field Size (mm x mm)	100 x 100	250 x 250	500 x 500	750 x 750	1,000 x 1,000	1,250 x 1,250	1,500 x 1,500
Average Spot Diameter 1/e <sup>2</sup> (μm) <sup>(1)</sup>							
AXIALSCAN-30-C/BO	80	210	350	515	685	850	-
AXIALSCAN-20-C	152	280	490	670	915	1,190	~ 1,450
Working Distance (mm) <sup>(2)</sup>							
AXIALSCAN-30-C/BO	77	263	572	882	1,191	1,500	-
AXIALSCAN-20-C	90	291	591	916	1,216	1,516	1,841
Resolution (μm)	< 4	< 8	< 16	< 24	< 32	< 40	< 48

(1) Input beam quality M<sup>2</sup>=1. (2) Distance between edge of deflection unit and working surface. This distance is dependent on the product model and will vary with laser divergence and objective tolerance.  
Note: Actual spot size and writing speeds are material and application dependent, and therefore varies according to application significantly.

## ● CONFIGURATION EXAMPLES FOR ND:YAG (λ=1,064 NM) AXIALSCAN-20-Y

Field Size (mm x mm)	200 x 200	400 x 400	600 x 600	800 x 800	1,000 x 1,000	1,200 x 1,200
Average Spot Diameter 1/e <sup>2</sup> (μm) <sup>(1)</sup>						
AXIALSCAN-20-Y	30	60	90	120	150	200
Working Distance (mm) <sup>(2)</sup>						
AXIALSCAN-20-Y	214	461	709	956	1,204	1,452
Resolution (μm)	< 7	< 13	< 19	< 25	< 31	< 37

(1) Input beam quality M<sup>2</sup>=1. (2) Distance between edge of deflection unit and working surface. This distance is dependent on the product model and will vary with laser divergence and objective tolerance.  
Note: Actual spot size and writing speeds are material and application dependent, and therefore vary according to application significantly.

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