NEW: SCANcube IV



SCANcube IV – Smart Scanning



Highlights

The proven SCANcube product family has received a facelift and offers an extended performance spectrum with the new SCANcube IV scan head.

Compared to the SCANcube III, the system's linearity has been improved by 30 percent. This facilitates calibration and enables more precise processing results, especially in applications with high scanning speeds. Furthermore, application-specific tunings are now available for the SCANcube IV. The SCANcube IV is the first representative of the SCANcube series to offer optional read-back functions. In combination with a RTC control board, additional functions for monitoring and system diagnostics are now available.

'Form follows function': The new, appealing housing design makes a decisive contribution to improved thermal management of the entire scan system.

Key Features

- Application-specific tunings with high scan dynamics
- A 30% improvement in linearity compared to the SCANcube III series
- New housing design featuring an optimized thermal management
- Optional feedback functionality for position, temperature, and status signals

0 00

Beam out

0

00

Beam in

96.5

SCANcube IV 10





all dimensions in mm

101.6

Application in Focus

Marking, Bitmaps



The new SCANcube IV scanning systems offer

- 10 mm and 14 mm apertures at product launch,
- variants for high laser power,
- **optional read-back functions**, previously only offered in the intelliSCAN product family,
- and feature **three different tuning variants** to meet the requirements of the respective applications.

- Sharp edge tunings with minimal tracking error for cleaning applications and hatching tasks
- Vector tunings with optimized dynamic performance for marking & labeling tasks
- Line scan tunings with high positioning speeds for bitmap applications

Laser Cleaning



Additive Manufacturing, Stereolithography



Engraving

Preliminary Specifications

Dynamics

	SCANcube IV 10		SCANcube IV 14
Tuning	Sharp Edge (Si)	Vector (Si)	Vector (Si)
Tracking Error [ms]	0.08	0.12	0.15
Speed (1)			
Positioning speed [m/s]	7.2	20.8	14.4
Marking speed [m/s]	4.5	3	2.5
Writing speed (2)			
Good writing quality [cps]	1190	950	750
Step Response Time (3)			
1% of full scale [ms]		0.3	0.35
Mechanics			
Dimensions (L x W x H) [mm ³]	114 x 96.5 x 101.6		135 x 99.5 x 118.5
Beam displacement [mm]	12.54		16.42

System Extensions

- Control boards: RTC4, RTC5, RTC6
- Z-Axis: varioSCAN (II)
- Laser marking software laserDESK

⁽¹⁾ with F-Theta objective, f = 160 mm

(2) single-stroke characters of 1 mm height

 $^{\scriptscriptstyle (3)}$ settling to 1/1000 of full scale

Precision & Stability

Repeatability (RMS) [µrad]	< 2	
Positioning Resolution [Bit] (4)	16	
Nonlinearity	< 0.7 mrad/44 °	
Temperature Drift		
Offset [µrad/K]	< 25	
Gain [ppm/K]	< 25	
Long-Term Drift		
Over 8 hours (after 30 min. warm-up) (5)		
Offset [µrad]	< 100	
Gain [ppm]	< 100	

 $^{(4)}$ based on the full angle range (e.g. positioning resolution 11 μrad for angle range ±0.36 rad)

(5) at constant ambient temperature and load

Common Specifications

Optical Performance	
Typical scan angle [rad]	±0.35
Gain error [mrad]	< 5
Zero offset [mrad]	< 5
Power Requirements	30 V, 3 A
Digital Interface	SL2-100 or XY2-100

(all angles are in optical degrees)

