



high speed scanning in pocket size

SCANcube series combines a robust and compact design with an attractive price/performance ratio. It is the best choice for both standard and demanding laser applications.

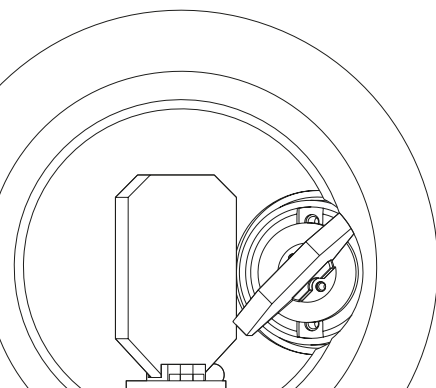
The latest generation of our versatile scan head series is now also available with readback functions.

Key Features

- Compact & lightweight design
- Robust, sealed housing
- High dynamic performance
- Large selection of mirror coatings
- Optional: readback function of actual position, temperature and status values

Typical Applications

- Marking tasks
- Semiconductor-industry materials processing
- Microstructuring
- Processing-on-the-fly
- Additive manufacturing (3D printing)



SCANcube



SCANcube III



SCANcube IV



Apertures	7 mm, 10 mm	10 mm, 14 mm	10 mm, 14 mm
Interface	analog, digital	analog, digital	digital
Control	analog	analog	digital
Galvanometer	dynAXIS	dynAXIS 3	dynAXIS 3
Tuning(s)	Fast-Vector	Fast-Vector	Fast-Vector, Sharp-Edge, Line Scan
Readback function	no	no	yes

Note: Comma-separated values imply selection options

Options

- **Mirrors**

Different wavelengths and laser powers

- **Objectives and objective holders**

Several focal lengths and resulting image field sizes

- **Camera adapter**

Various versions for optical process monitoring

- **Z axes**

varioSCAN II, excelliSHIFT

- **Control boards**

RTC4, RTC5, RTC6

- **Correction files**

Objective-specific RTC correction files

- **Laser processing software**

laserDESK
laser processing software

Applications



Marking

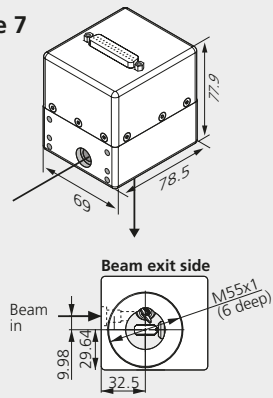


Laser engraving

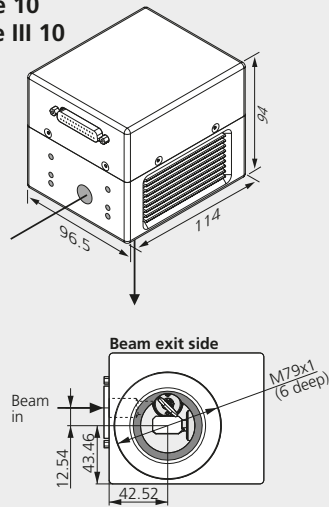


Additive manufacturing (3D printing)

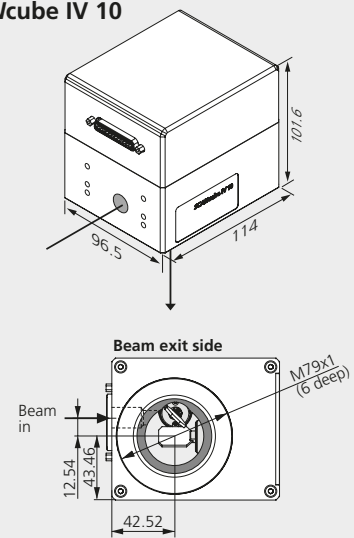
SCANcube 7



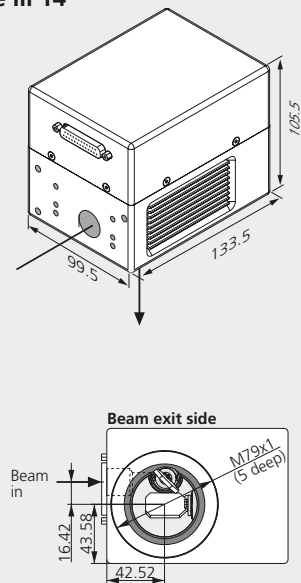
SCANcube 10
SCANcube III 10



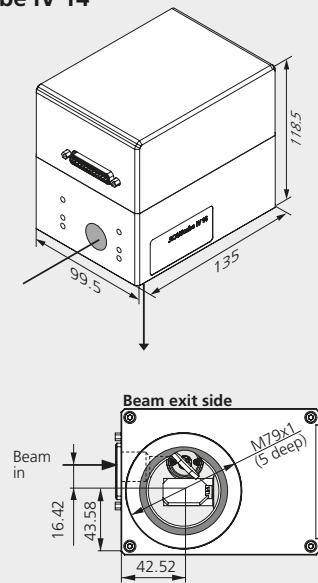
SCANcube IV 10



SCANcube III 14



SCANcube IV 14



all dimensions in mm

	SCANcube	SCANcube, SCANcube III	SCANcube IV
Aperture	7 mm	10 mm	14 mm
Beam displacement	9.98 mm	12.54 mm	16.42 mm
Weight	650 g	1.9 kg	2.1 kg

Specifications

Dynamics

	SCANcube	SCANcube	SCANcube III	SCANcube IV ⁽⁴⁾	SCANcube III	SCANcube IV ⁽⁴⁾
Aperture [mm]	7	10	10	10	14	14
Tracking error [ms]	0.14	0.16	0.12	0.12	0.15	0.15
Typical speeds ⁽¹⁾						
Marking speed [m/s]	2.5	2.0	3.0	3.0	2.0	2.5
Positioning speed [m/s]	15.0	10.0	16.0	20.8	14.0	14.4
Writing speed [cps] ⁽²⁾						
good writing quality [cps]	900	640	925	950	740	750
high writing quality [cps]	600	400	500	700	500	540
Step response time ⁽³⁾						
1 % of full scale [ms]	0.25	0.4	0.3	0.3	0.35	0.35
10% of full scale [ms]	0.7	1.2	0.8	0.8	0.9	1.2

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

⁽²⁾ single-stroke characters of 1 mm height

⁽³⁾ settling to 1/1000 of full scale

⁽⁴⁾ specifications for vector tuning with 30 V power. More tunings on request.

Precision & Stability

	SCANcube	SCANcube III	SCANcube IV
Repeatability (RMS) [μrad]	< 2	< 2	< 2
Positioning resolution [bit] ⁽⁵⁾	16	16	16
Nonlinearity ⁽⁶⁾	< 3.5 mrad	< 0.9 mrad	< 0.7 mrad
Temperature drift			
Offset [μrad/K]	< 30	< 25	< 20
Gain [ppm/K]	< 80	< 25	< 20
Long-term drift			
8-h-drift (after 30 min warm-up) ⁽⁷⁾	< 0.3 mrad ⁽⁸⁾		
Offset [μrad]		< 100	< 50
Gain [ppm]		< 100	< 50

⁽⁵⁾ based on the full angle range (e.g. positioning resolution 11 μrad for angle range ±0,36 rad)

⁽⁶⁾ related to 0.77 rad

⁽⁷⁾ at constant ambient temperature and load

⁽⁸⁾ plus temperature-included Gain and Offset drift

Common Specifications

	SCANcube	SCANcube IV
Optical performance		
Typical scan angle [rad]	± 0.35	± 0.35
Gain error [mrad]	< 5	< 5
Zero offset [mrad]	< 5	< 5
Power requirements		
	± 15 V DC, max. 3 A each	24 V DC, 30 V DC, max. 3 A each
Interface		
digital version	SL2-100 or XY2-100	SL2-100 or XY2-100
analog version	± 4.8 V	-
IP protection class		
	IP 50, IP 66 ⁽⁹⁾	IP 50, IP 66 ⁽⁹⁾
Operating temperature [°C]		
	25 ± 10	25 ± 10

(all angles are in optical degrees)

⁽⁹⁾ on request

Counterfeit Protection

We equip all scan systems and RTC control cards with a forgery-proof label that contains the following features:

- holographic elements
- authentication features that are not directly visible
- not removable without residue

The allocation and traceability is secured by individual coding in combination with uniquely assigned serial numbers.

