More Information at:

## scanning in pocket size

The ultra-compact **scan heads** of the *SCAN*cube® series deliver excellent dynamics and superior SCANLAB product quality in a minimum-size package. The scan heads of the intelli*cube*® series advantageously combine the features of the successful *SCAN*cube® and intelli*SCAN*® platforms.
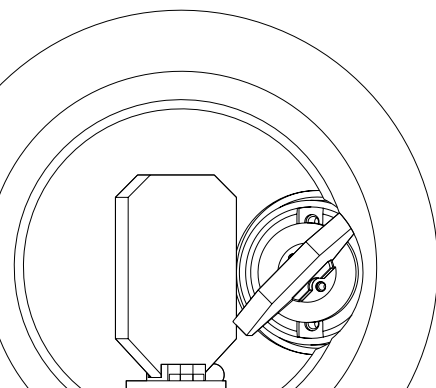
Sealed against water and dust, the *SCAN*cube®'s and intelli*cube*®'s robust and exceptionally compact housing facilitates straightforward integration into production environments – even confined, difficult-to-access locations. A wide variety of objectives can be used with these scan heads.

*SCAN*cube® and intelli*cube*® scan heads bring success to applications demanding very fast marking speeds and integration in the tightest of spaces. Applications include packaging-industry coding and marking of electronic components, i.e. market domains typically served in the past by inkjet systems.

The intelli*cube*® is also ideal for applications requiring very high dynamics or the acquisition of important status information.
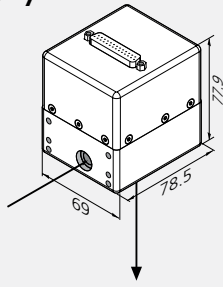
### Typical Applications:

- Marking and coding
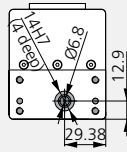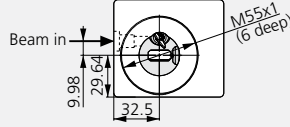- Semiconductor and electronics industry
- Processing-on-the-fly

*SCANLAB*
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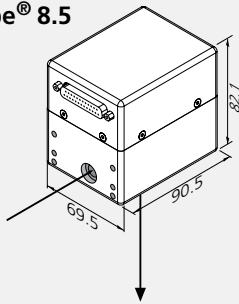## *SCAN*cube® 7

**Beam entrance side**
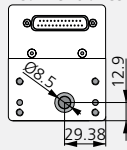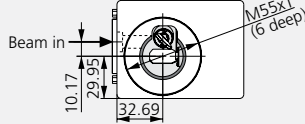
77.9
78.5
69

4H7
(4 deep)
Ø6.8
12.9
29.38

**Beam exit side with**

Beam in
M55x1
(6 deep)
9.98
29.64
32.5

## *SCAN*cube® 8.5

82.1
90.5
69.5

**Beam entrance side**

Ø8.5
12.9
29.38

**Beam exit side**

Beam in
M55x1
(6 deep)
10.17
29.95
32.69

## *SCAN*cube® 10

94
114
96.5

**Beam entrance side**

Ø9.8
22.41
40.5

**Beam exit side**

Beam in
M79x1
(6 deep)
12.54
43.46
42.52

## *SCAN*cube® 14

105.5
133.5
99.5

**Beam entrance side**

Ø13.8
22.41
39.5

**Beam exit side**

Beam in
M79 x 1
(5 deep)
16.42
43.58
42.52
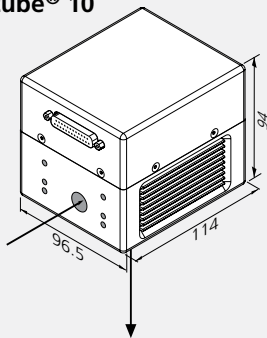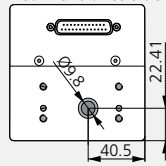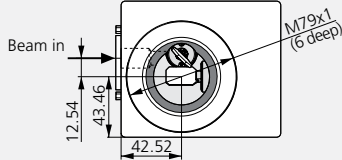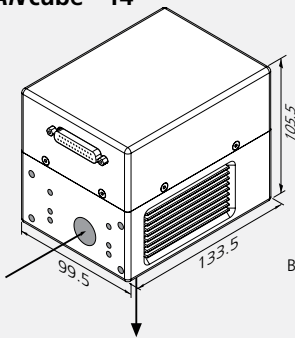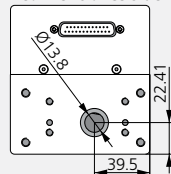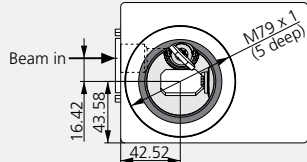
all dimensions in mm

| Dimensions | *SCAN*cube® | | | |
|---|---|---|---|---|
| **Aperture** | 7 mm | 8,5 mm | 10 mm | 14 mm |
| **Beam displacement** | 9.98 mm | 10.17 mm | 12.54 mm | 16.42 mm |

### Optics

SCANLAB precisely optimizes and tunes all optical components to one another to ensure maximum focus quality and stable process parameters. Optical components offered by SCANLAB include compact objectives, as well as objective mounts for standard objectives. Optics for various wavelengths, power densities, focal lengths and image fields are available.

### Control

*SCAN*cube® scan heads are equipped with either an analog or a digital standard interface accessible via a 25-pin D-SUB connector.

They are easily controlled via SCANLAB's RTC® PC interface board or the PC-independent RTC® *SCAN*alone board from SCANLAB.

intelli*cube*® scan heads are equipped with a digital standard interface. They are easily controlled via SCANLAB's RTC®4 or RTC®5 PC interface board. Scan head diagnosis and all essential configuration parameters are controlled via software commands.

### Options

• For optical process monitoring, SCANLAB offers a camera adapter.
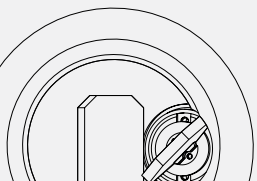
### *SCAN*cube® or intelli*cube*®?

The intelli*cube*® and *SCAN* cube® are electrically and mechanically inter-compatible.

In addition to the 10 and 14 mm apertures, the *SCAN* cube® series also offers extremely compact scan heads with 7 or 8.5 mm apertures. Further the *SCAN* cube® can be equipped with either a digital or an analog interface.

The intelli*cube*® provides improved dynamic performance. And as a direct beneficiary of SCANLAB's years of experience developing digitally controlled intelli*SCAN*® scan systems, the intelli*cube*® also offers all the advantages of i*DRIVE*® technology: high flexibility, superior dynamics, real-time monitoring of actual position and advanced status information, etc.

intelli*cube*® scan heads are available with vector-tuning or step-tuning.

### Quality

The high quality of SCANLAB's scan solutions is the result of years of experience in the development and manufacture of galvanometer scanners and scan systems. In addition, every scan system must first pass the *SCAN* check burn-in test before it is released for shipment to the customer.

**intelli*cube*® 10**

**Beam entrance side**

**Beam exit side**

**intelli*cube*® 14**

**Beam entrance side**

**Beam exit side**
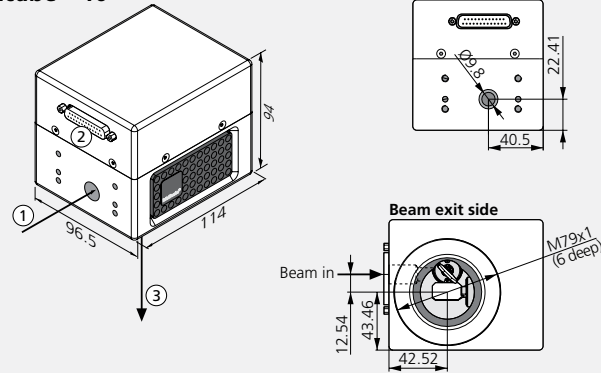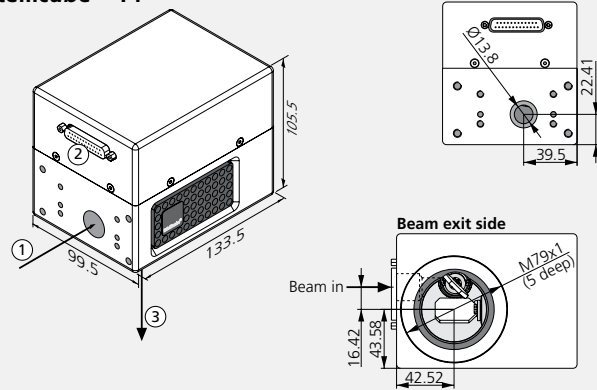
**Legend**

1  Beam in
2  Connector
3  Beam out

all dimensions in mm

The housing dimensions of intelli*cube*® 10 and 14 are identical to *SCAN*cube® 10 and 14.

| Dimensions | intelli*cube*® | |
|---|---|---|
| **Aperture** | 10 mm | 14 mm |
| **Beam displacement** | 12.54 mm | 16.42 mm |

# SCANcube®, intellicube®

## Type-Dependent Specifications
(all angles are in optical degrees)

| | SCANcube® 7 | SCANcube® 8.5 | SCANcube® 10 | intellicube® 10 | SCANcube® 14 | intellicube® 14 |
|---|---|---|---|---|---|---|
| **Aperture** | 7 mm | 8.5 mm | 10 mm | 10 mm | 14 mm | 14 mm |
| **Beam displacement** | 9.98 mm | 10.17 mm | 12.54 mm | 12.54 mm | 16.42 mm | 16.42 mm |
| **Dynamic performance** | | | | | | |
| Tracking error | 0.14 ms | 0.14 ms | 0.16 ms | 0.14 ms | 0.30 ms | 0.24 ms |
| **Step response time** (settling to 1/1000 of full scale) | | | | | | |
| 1 % of full scale | 0.25 ms | 0.30 ms | 0.40 ms | 0.35 ms | 0.65 ms | 0.50 ms |
| 10% of full scale | 0.70 ms | 0.70 ms | 1.2 ms | 1.2 ms | 1.6 ms | 1.4 ms |
| **Typical speeds**[1] | | | | | | |
| Marking speed | 2.5 m/s | 2.5 m/s | 2.0 m/s | 2.5 m/s | 1.0 m/s | 1.5 m/s |
| Positioning speed | 15.0 m/s | 15.0 m/s | 10.0 m/s | 15.0 m/s | 7.0 m/s | 12.0 m/s |
| Writing speed[2] | | | | | | |
| good writing quality | 900 cps | 900 cps | 640 cps | 800 cps | 410 cps | 460 cps |
| high writing quality | 600 cps | 600 cps | 400 cps | 500 cps | 280 cps | 320 cps |
| **Weight** (without objective) | 650 g | 1 kg | 1.9 kg | 1.9 kg | 2.3 kg | 2.3 kg |

[1] with F-Theta objective, f = 160 mm
[2] single-stroke characters of 1 mm height

## Common Specifications
(all angles are in optical degrees)

| **Dynamic performance** | |
|---|---|
| Repeatability (RMS) | < 2 µrad |
| Offset drift | < 30 µrad/K |
| Gain drift | < 80 ppm/K |
| Long-term drift over 8 hours | < 0.3 mrad plus temperature-induced gain and offset drift |
| **Optical performance** | |
| Typical scan angle | ±0.35 rad |
| Gain error | < 5 mrad |
| Zero offset | < 5 mrad |
| Nonlinearity | < 3.5 mrad |
| **Power requirements** | ±15 V DC, max. 3 A each (SCANcube® 7 max. 2 A) |
| **Interface** | |
| Analog version (SCANcube®) | ±4,8 V |
| Digital version | XY2-100 [3] or SL2-100 |
| **Operating temperature** | 25 °C ± 10 °C |

[3] intellicube® XY2-100 Enhanced, SCANcube® XY2-100 Standard

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