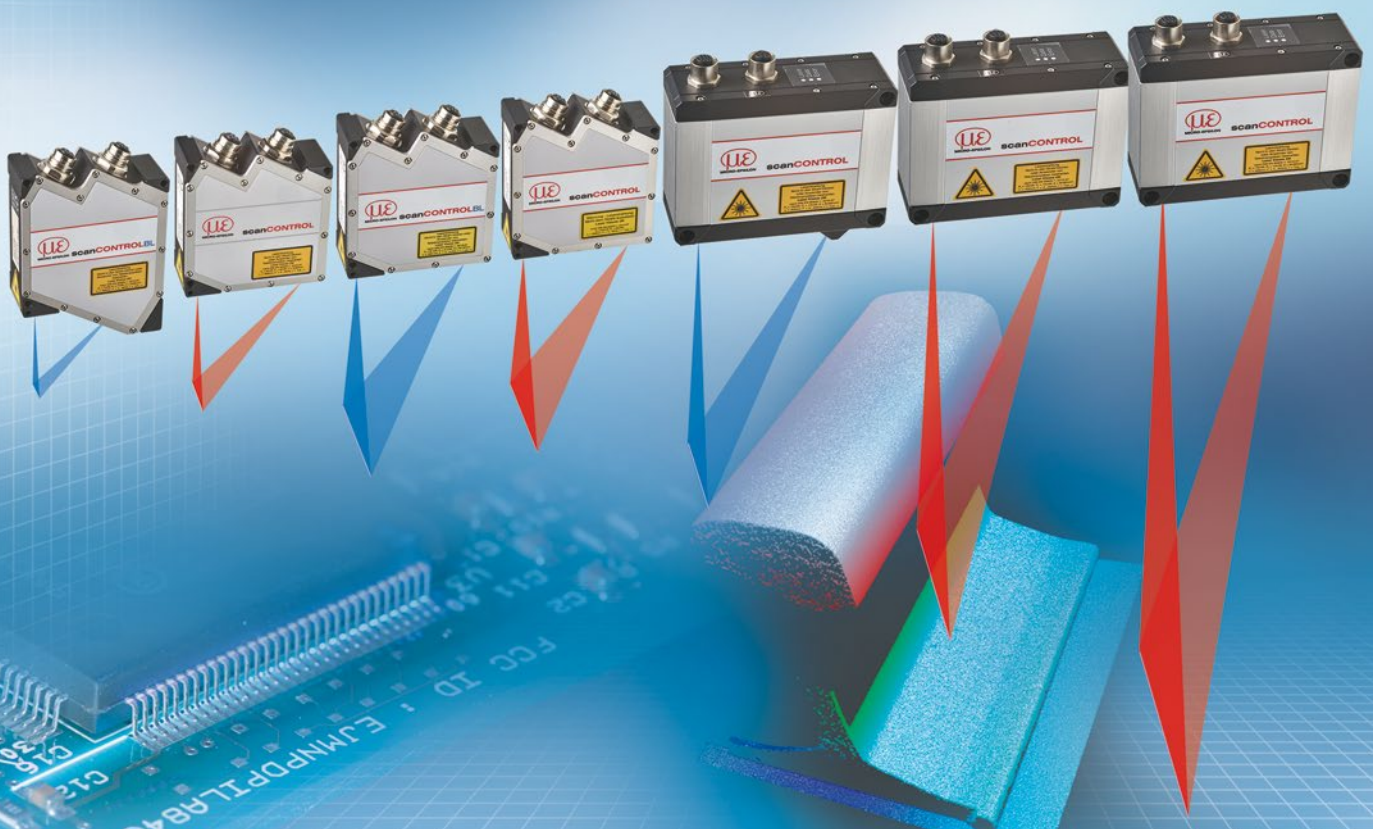# MICRO-EPSILON

More Precision

scanCONTROL // 2D/3D Laser profile sensors

> **Precise profile measurements for industrial measurement tasks**

> **Resolution (x-axis) 1,024 points**

> **Profile frequency 5,000 Hz**

> **For small and large measuring ranges**

> **Also available with patented Blue Laser Technology**

Article designation

LLT	30	xx	-25	/SI

Options - see below

Measuring range
25 mm
50 mm
100 mm
200 mm

Class
02 = COMPACT
12 = SMART

Series
LLT30xx

Precise 2D/3D profile measurements

The new LLT30x2 laser profile scanners provide calibrated profile data with up to 5.12 million points per second. They allow profile frequencies up to 5 kHz and resolutions up to 1,024 points. Thanks to their high accuracy and versatility, the scanners are particularly suitable for static and dynamic applications as well as robotic applications They measure and evaluate, e. g., angles, steps, gaps, distances, and circles.

Available as COMPACT and SMART versions

The scanCONTROL 30x2 series is available as COMPACT and SMART versions. The COMPACT scanners provide calibrated profile data that can be further processed on a PC with software evaluation provided by the customer. SMART scanners operate autonomously and provide selected measurement values. The scanCONTROL 30x2 series supports all SMART functions and programs that are set in the scanCONTROL Configuration Tools software and directly stored in the internal controller.

The easy way of machine integration

The design of the LLT30x2 series is compact and lightweight. The controller is integrated in the sensor itself, which simplifies mechanical integration. The measurement data can be output directly.

Laser options*

/SI	Hardware switch-off of the laser line
/3R	Increased laser power (class 3R) e.g., for dark surfaces
/BL	Blue laser line (405 nm) for (semi-) transparent, red-hot glowing and organic materials

Cable output options*

/PT	Cable directly out of the sensor ("Pigtail") Available lengths: 0.3 / 0.6 / 1 m
/ST	1 cable directly out of the sensor ("Single Tail"), no multi-function port Available lengths: 0.3 / 0.6 / 1.00 m

*Options can be combined

Model	LLT 30x2-25		LLT 30x2-50		LLT 30x2-100		LLT 30x2-200
Available laser type	Red Laser	Blue Laser	Red Laser	Blue Laser	Red Laser	Blue Laser	Red Laser

z-axis

		LLT 30x2-25	LLT 30x2-50	LLT 30x2-100	LLT 30x2-200
Measuring range	Start of measuring range	77.5 mm	105 mm	200 mm	200 mm
	Mid of measuring range	85 mm	125 mm	270 mm	310 mm
	End of measuring range	92.5 mm	145 mm	340 mm	420 mm
	Height of measuring range	15 mm	40 mm	140 mm	220 mm
Extended measuring range	Start of measuring range	-	-	190 mm	160 mm
	End of measuring range	-	-	360 mm	460 mm
Max. deviation of a single point [1] (2 sigma)	Red Laser	±0.09 %	±0.09 %	±0.08 %	±0.12 %
	Blue Laser	±0.08 %	±0.08 %	±0.07 %	-
Line linearity [1] [2]		2 μm	4 μm	10 μm	30 μm
		±0.013 %	±0.01 %	±0.007 %	±0.014 %

x-axis

		LLT 30x2-25	LLT 30x2-50	LLT 30x2-100	LLT 30x2-200
Measuring range	Start of measuring range	23 mm	43.3 mm	75.6 mm	130 mm
	Mid of measuring range	25 mm	50 mm	100 mm	200 mm
	End of measuring range	26.8 mm	56.5 mm	124.4 mm	270 mm
Extended measuring range	Start of measuring range	-	-	72.1 mm	100 mm
	End of measuring range	-	-	131.1 mm	290 mm
Resolution		1,024 points/profile			

Profile frequency	up to 5,000 Hz
Interfaces — Ethernet GigE Vison	Output of measurement values / Sensor control / Profile data transmission
Interfaces — Digital inputs	Mode switching / Encoder (counter) / Trigger
Interfaces — RS422 (half-duplex) [3]	Output of measurement values / Sensor control / Trigger / Synchronization
Output of measurement values	Ethernet (UDP / Modbus TCP); RS422 (ASCII / Modbus RTU) / analog [4]; switch signal [4] / PROFINET [5]; EtherCAT [5]; EtherNet/IP [5]
Control and display elements	3x color LEDs for laser, data and error

Light source

	LLT 30x2-25	LLT 30x2-50	LLT 30x2-100	LLT 30x2-200
Red Laser	≤ 10 mW			≤ 12 mW
	Standard: laser class 2M, semiconductor laser 658 nm			
	≤ 30 mW		≤ 50 mW	
	Option: laser class 3R, semiconductor laser 658 nm			
Blue Laser	≤ 10 mW			-
	Standard: laser class 2M, semiconductor laser 405 nm			-
Laser switch-off	via software, hardware switch-off with /SI option			
Aperture angle of laser line	23°	28°	30°	45°

Permissible ambient light (fluorescent light) [1]	10,000 lx
Protection class (DIN EN 60529)	IP67 (when connected)
Vibration (DIN EN 60068-2-27)	2 g / 20 … 500 Hz
Shock (DIN EN 60068-2-6)	15 g / 6 ms
Temperature range — Storage	-20 … +70 °C
Temperature range — Operation	0 … +45 °C
Weight	415 g (without cable)
Supply voltage	11 … 30 VDC, nominal value 24 V, 500 mA, IEEE 802.3af class 2, Power over Ethernet (PoE)

[1] According to measuring range; Measuring object: Micro-Epsilon standard object
[2] According to a one-time averaging over the width of the measuring field (1,024 points)
[3] RS422 interface, programmable either as serial interface or as input for triggering/synchronization
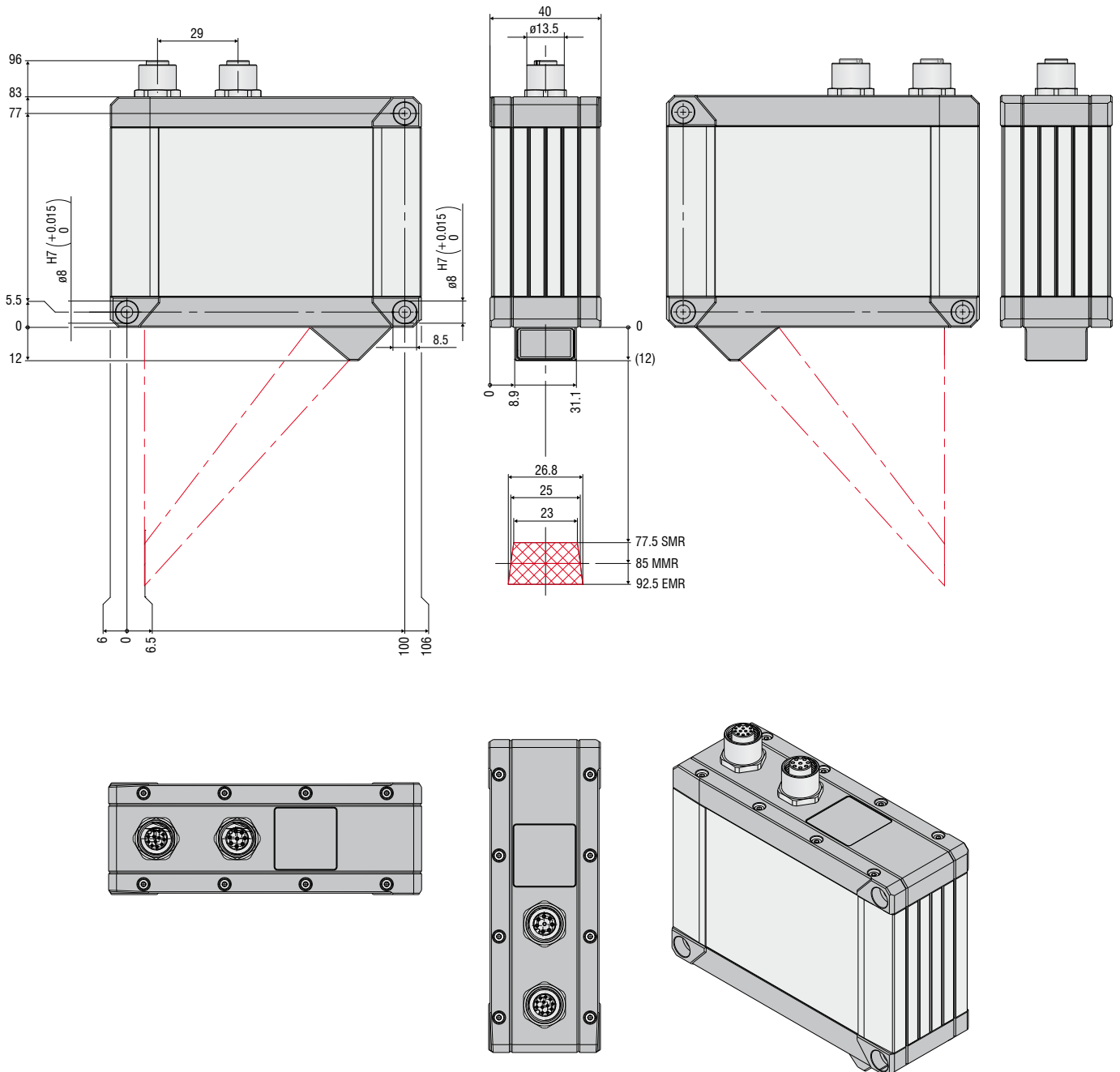[4] Only with 2D/3D Output Unit
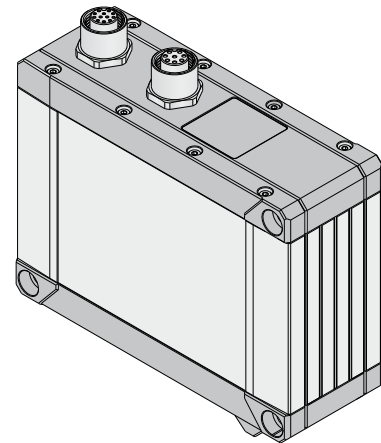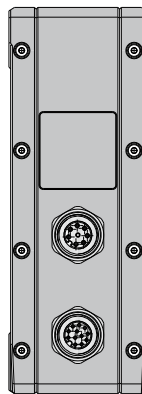[5] Only with 2D/3D Gateway
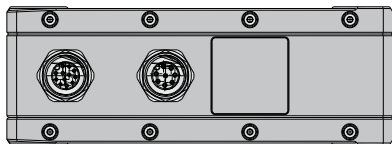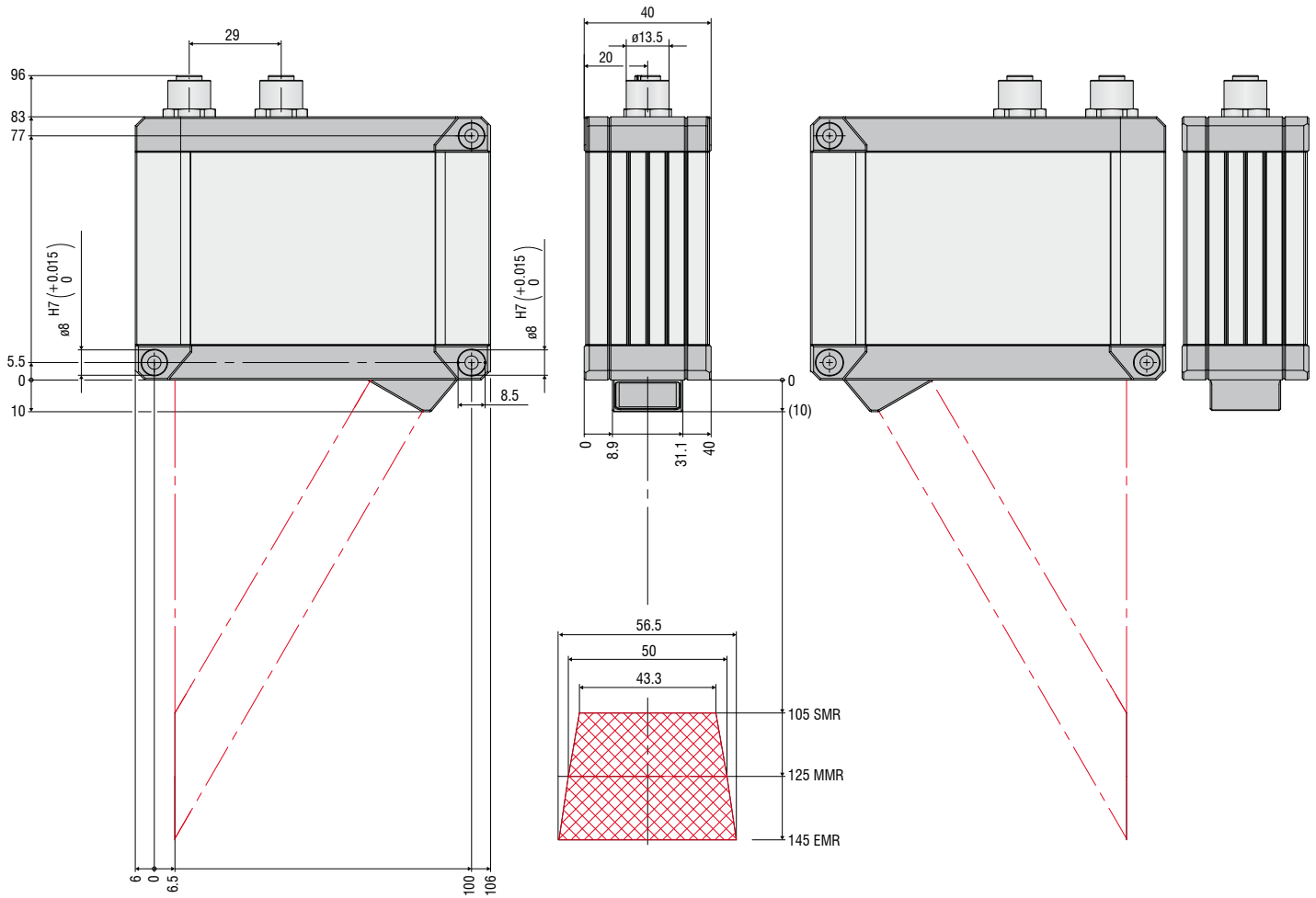
LLT30x2-25 / LLT30x0-25

Red Laser   Blue Laser

LLT30x2-50 / LLT30x0-50

Red Laser   Blue Laser

Top view (left):
- 29
- 96
- 83
- 77
- ø8 H7 $\left(\begin{smallmatrix} +0.015 \\ 0 \end{smallmatrix}\right)$
- ø8 H7 $\left(\begin{smallmatrix} +0.015 \\ 0 \end{smallmatrix}\right)$
- 5.5
- 0
- 10
- 8.5
- 6
- 0
- 6.5
- 100
- 106

Side view (middle):
- 40
- ø13.5
- 20
- 0
- (10)
- 0
- 8.9
- 31.1
- 40

Measurement zone:
- 56.5
- 50
- 43.3
- 105 SMR
- 125 MMR
- 145 EMR

LLT30x2-100 / LLT30x0-100

Red Laser   Blue Laser

LLT30x2-200 / LLT30x0-200

29

96
83
77

5.5

0

ø8 H7 $\left(^{+0.015}_{0}\right)$

ø8 H7 $\left(^{+0.015}_{0}\right)$

8.5

6
0
6.5
100
106

40
ø13.5

Z

0

290 extended
270
200
130
100 extended

160 extended

200 SMR

310 MMR

420 EMR

460 extended

Z

0

68.5
15
18
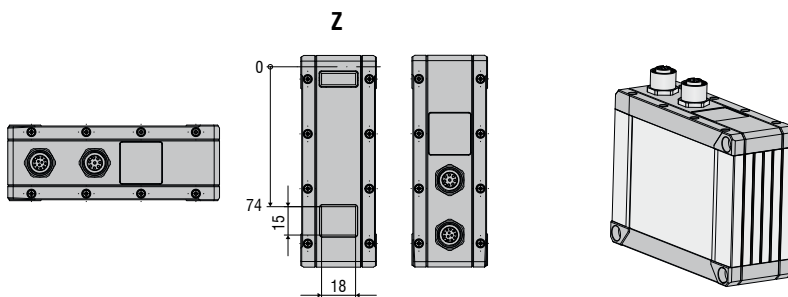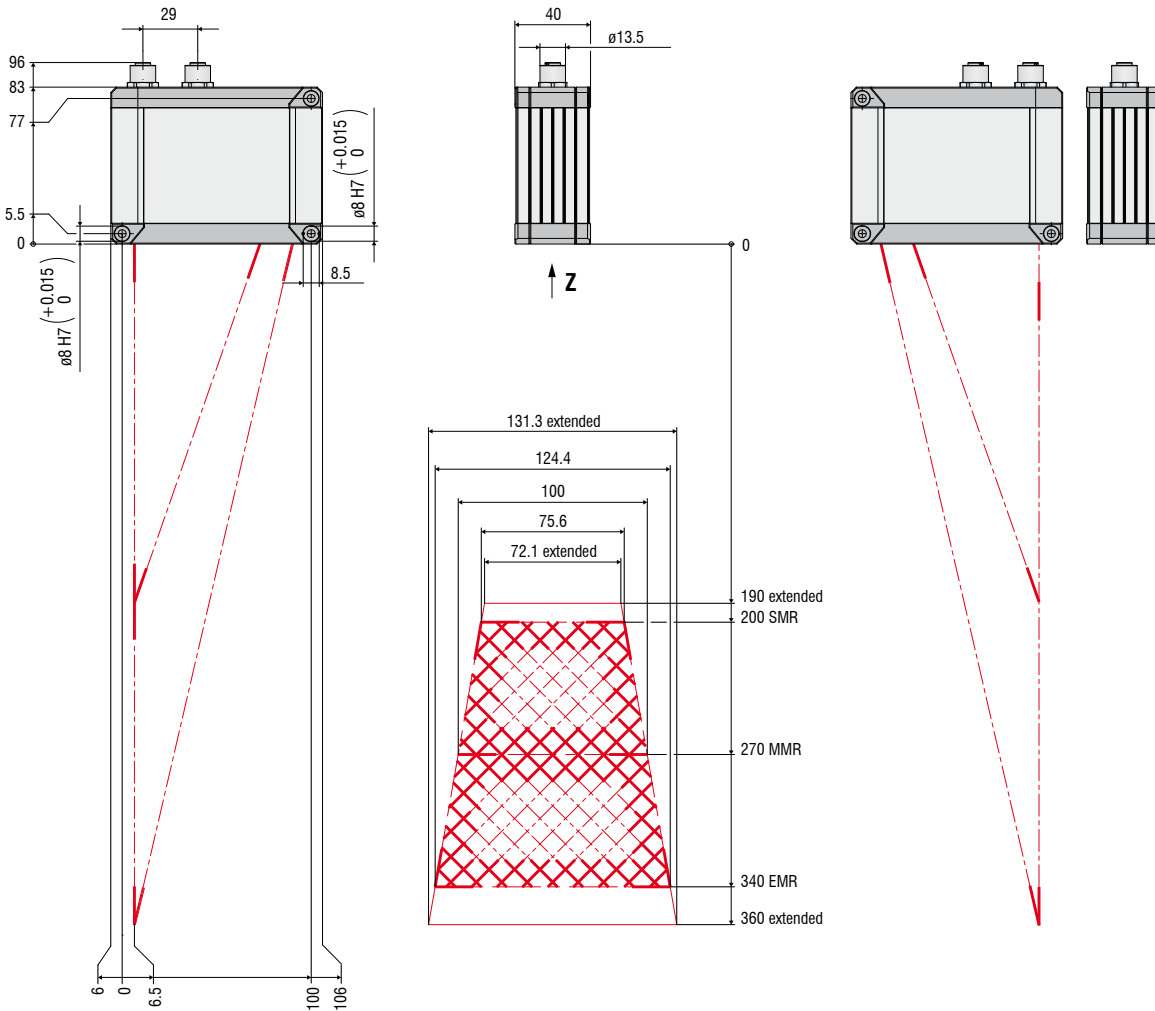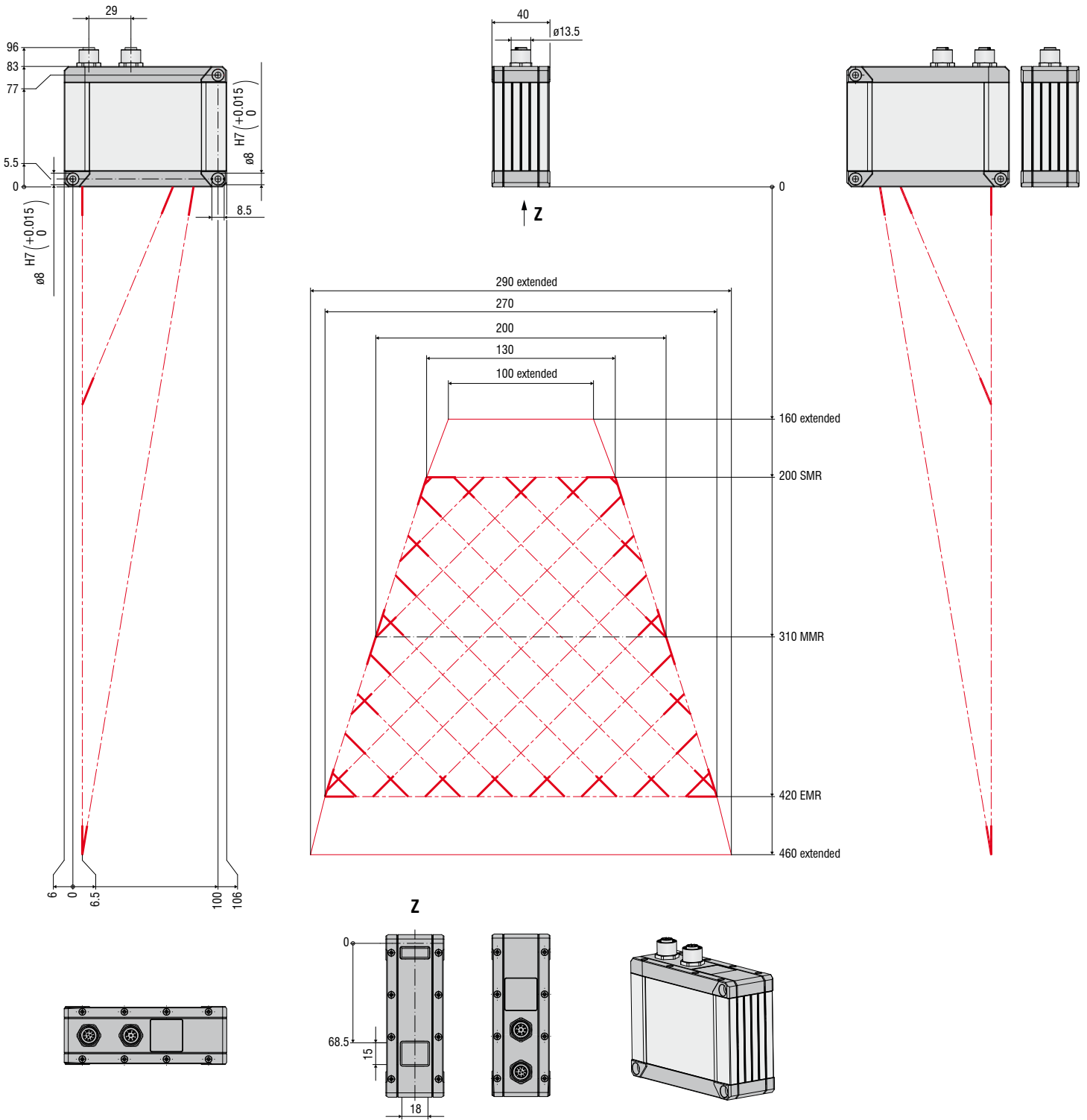
Sensors and Systems from Micro-Epsilon

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Sensors and measurement devices for non-contact temperature measurement

Measuring and inspection systems for quality assurance

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3D measurement technology for dimensional testing and surface inspection

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