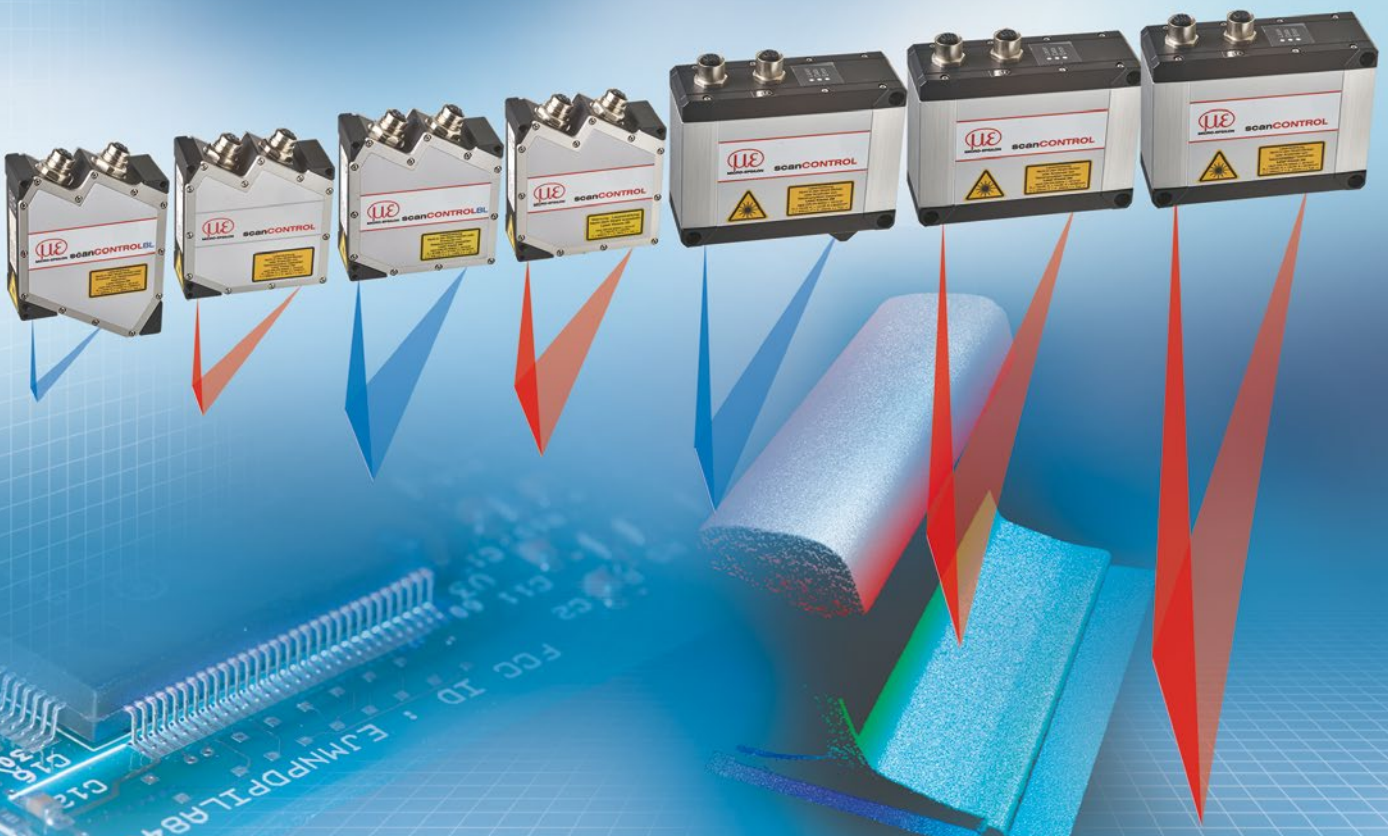# MICRO-EPSILON

More Precision

scanCONTROL // 2D/3D Laser profile sensors

High resolution in x- and z-axis for accurate profile measurement

Profile frequency up to 10 kHz for monitoring of dynamic processes

Innovative exposure control

For small and large measuring ranges

Also available with patented Blue Laser Technology

Compatible with **COGNEX**® VisionPro

Fast and precise 2D/3D profile measurements

The new LLT30x0 laser profile scanners provide calibrated profile data with up to 9.6 million points per second. Thanks to their high accuracy, high profile frequency and versatility, these powerful scanners are suitable for demanding measurement tasks. They measure and evaluate, e.g., angles, steps, gaps, distances and circles with high precision. These sensors also offer predefined operating modes that enable optimal results for various applications.

Available as COMPACT and SMART versions

The scanCONTROL 30x0 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 30x0 series supports all SMART functions and programs that are set in the scanCONTROL Configuration Tools software and directly stored in the internal controller.

Innovative exposure control to master difficult surfaces

On inhomogeneous or dark surfaces, the HDR (High Dynamic Range) data acquisition mode and the improved auto exposure optimizes the measurement results. In HDR mode, the rows of the sensor matrix are exposed differently but at the same time which avoids time offsets between the recordings. This is how moving objects can be detected reliably. The areas for auto exposure can be selected individually.

Article designation

LLT	30	xx	-25	/SI	

Options - see below

Measuring range
25 mm
50 mm
100 mm
200 mm

Class
00 =COMPACT
10 =SMART

Series
LLT30xx

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 outlet options*

	/RT	Cable outlet on the rear side („Rear Tail") for space-saving installation, cable length 0.3 m, sockets at the end of the cable
	/PT	Cable directly out of the sensor („Pigtail") Available lengths: 0.3 / 0.6 / 1 m

*Options can be combined

Model	LLT 30x0-25		LLT 30x0-50		LLT 30x0-100		LLT 30x0-200
Available laser type	Red Laser	Blue Laser	Red Laser	Blue Laser	Red Laser	Blue Laser	Red Laser

z-axis						
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
Line linearity [1] [2]		1.5 μm	3 μm	9 μm	26 μm
		±0.01 %	±0.0075 %	±0.006 %	±0.012 %

x-axis						
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		2,048 points/profile			

Profile frequency	up to 10,000 Hz

Interfaces	Ethernet GigE Vision	Output of measurement values Sensor control Profile data transmission
	Digital inputs	Mode switching Encoder (counter) Trigger
	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	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		
	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 (2,048 points)
[3] RS422 interface, programmable either as serial interface or as input for triggering/synchronization
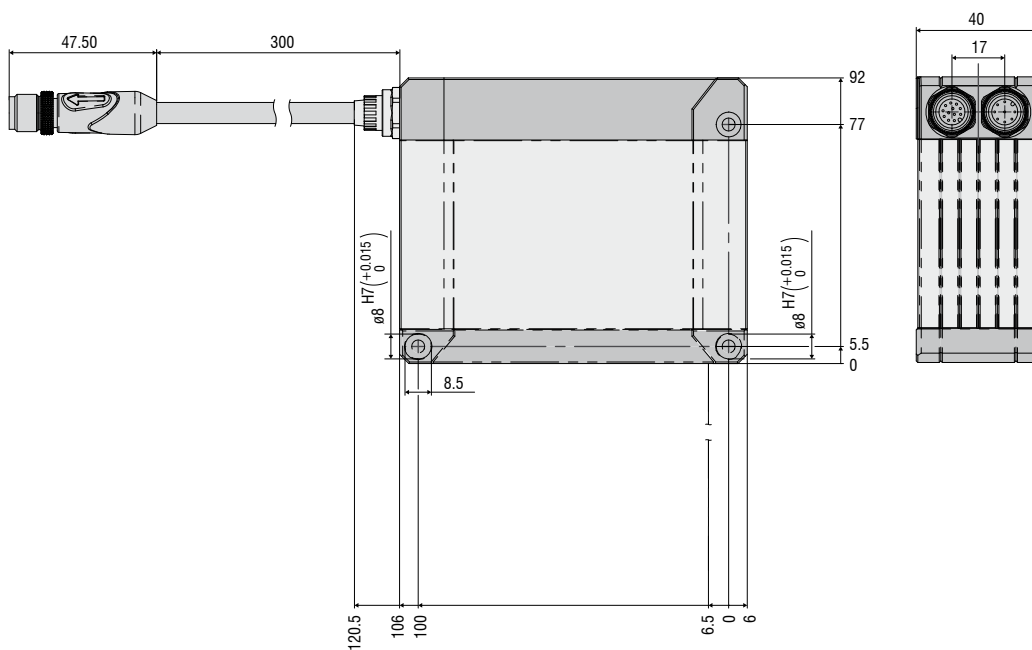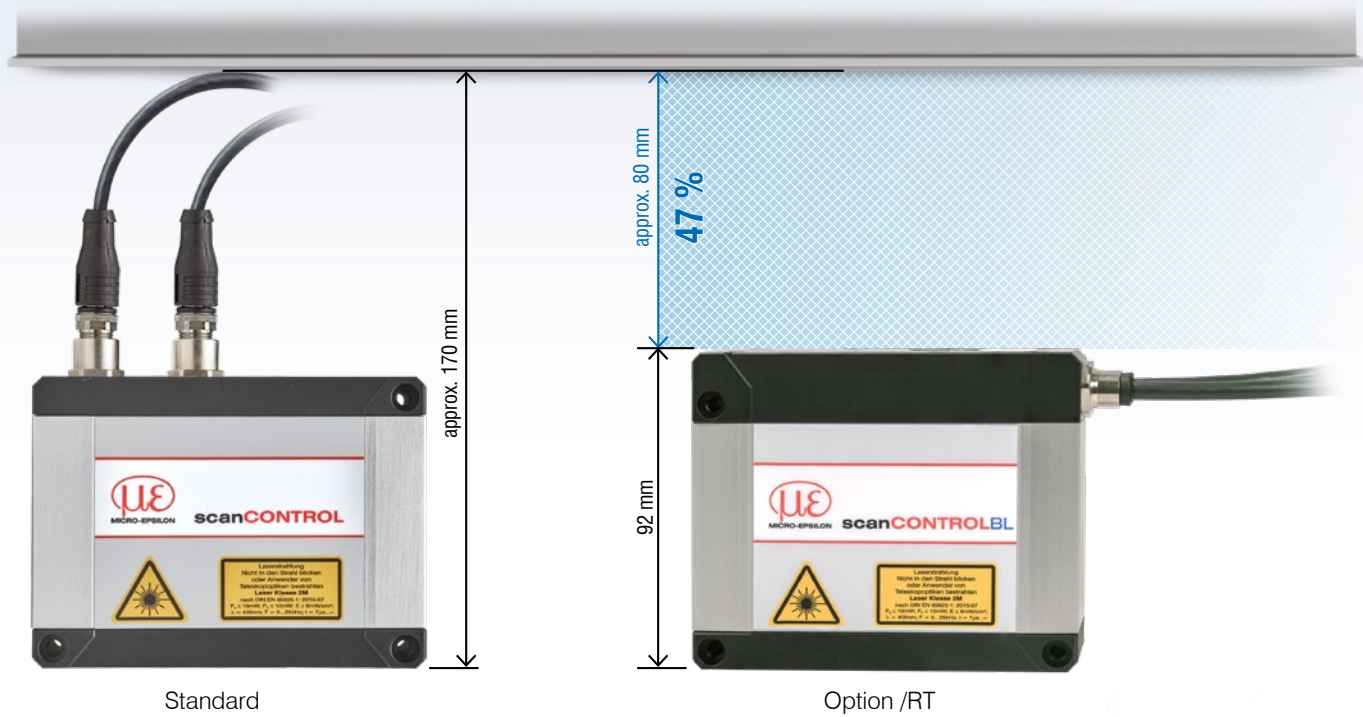[4] Only with 2D/3D Output Unit
[5] Only with 2D/3D Gateway

NEW

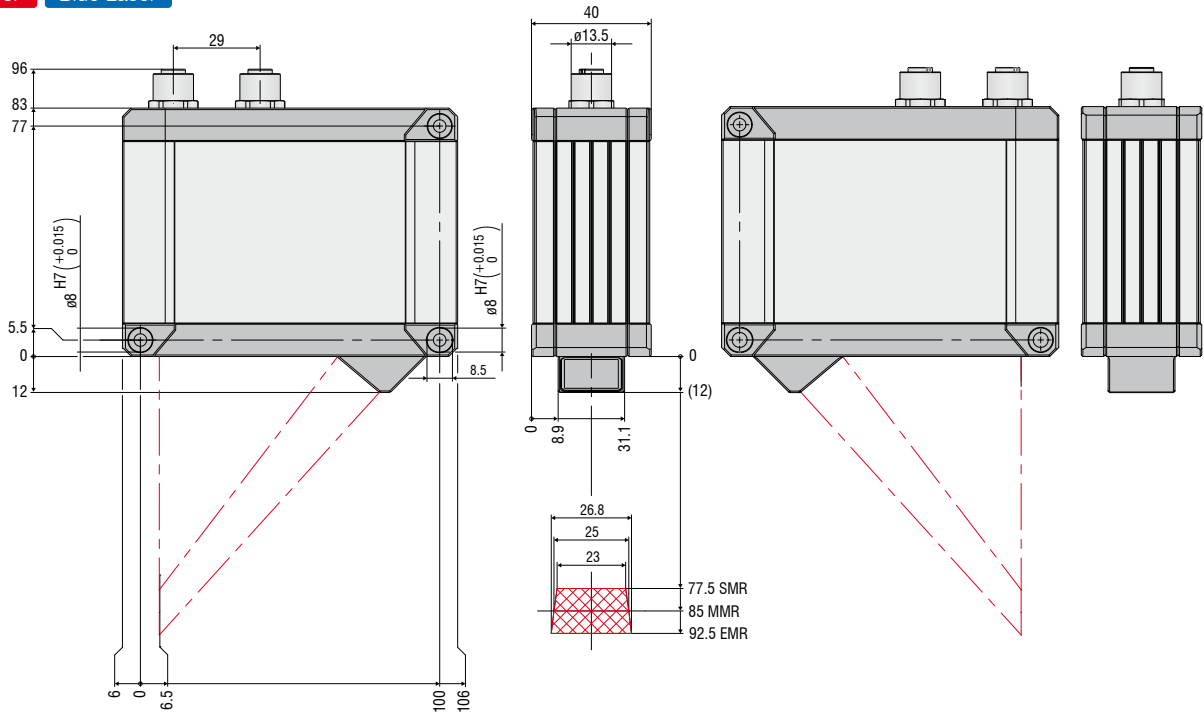### Option /RT = "Rear Tail"

Cable outlet on the rear side ("Rear Tail") for space-saving installation
- Available for all measuring ranges
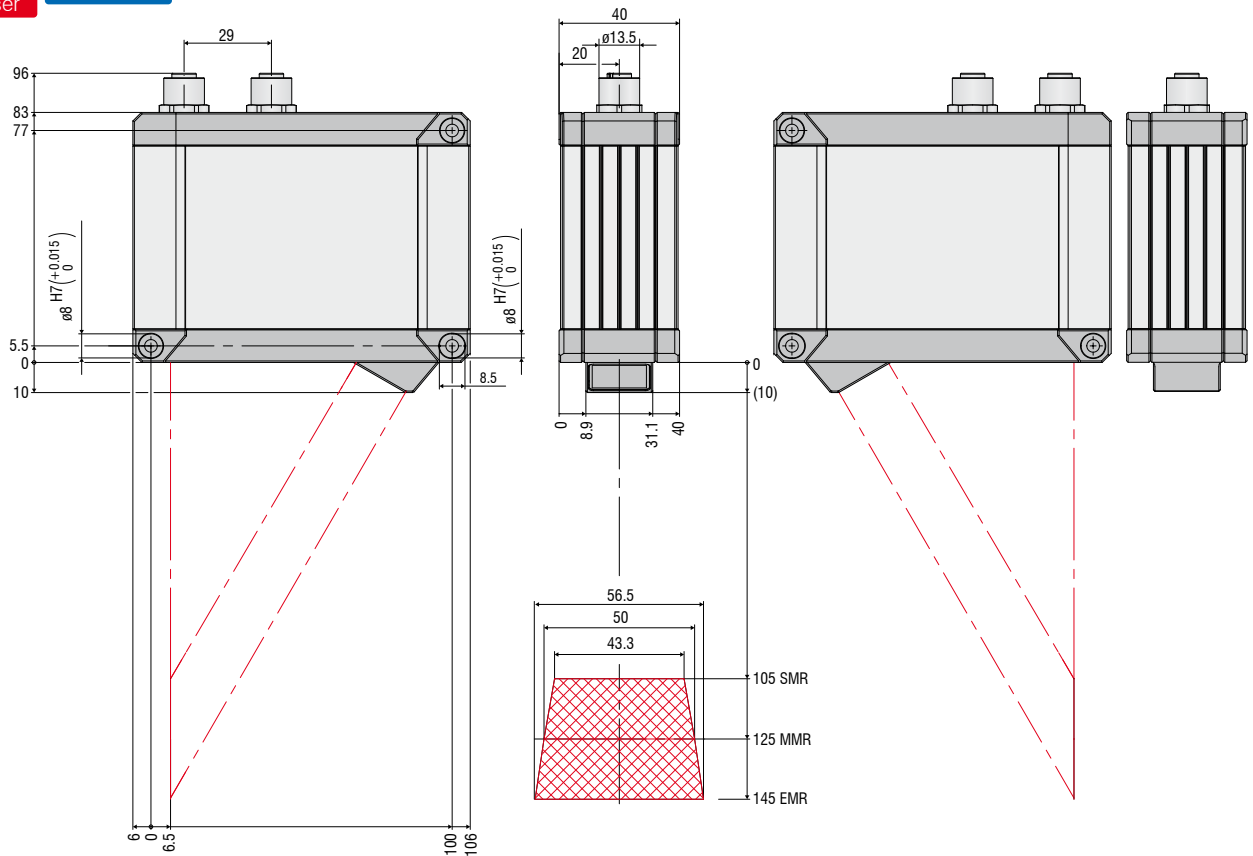- 30 cm pigtail
- Reduces the installation height by 47%

approx. 80 mm

47 %

approx. 170 mm

92 mm

Standard

Option /RT

47.50   300

40

17

92

77

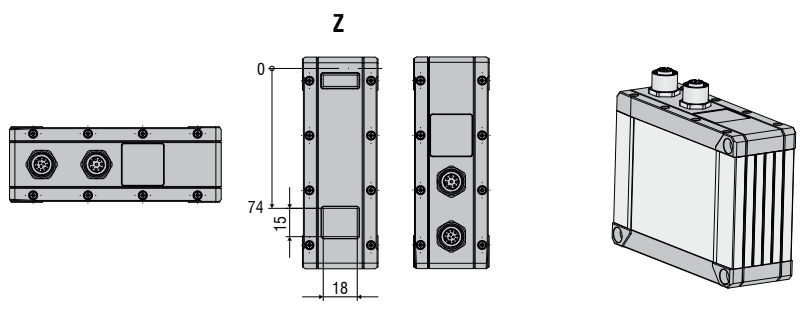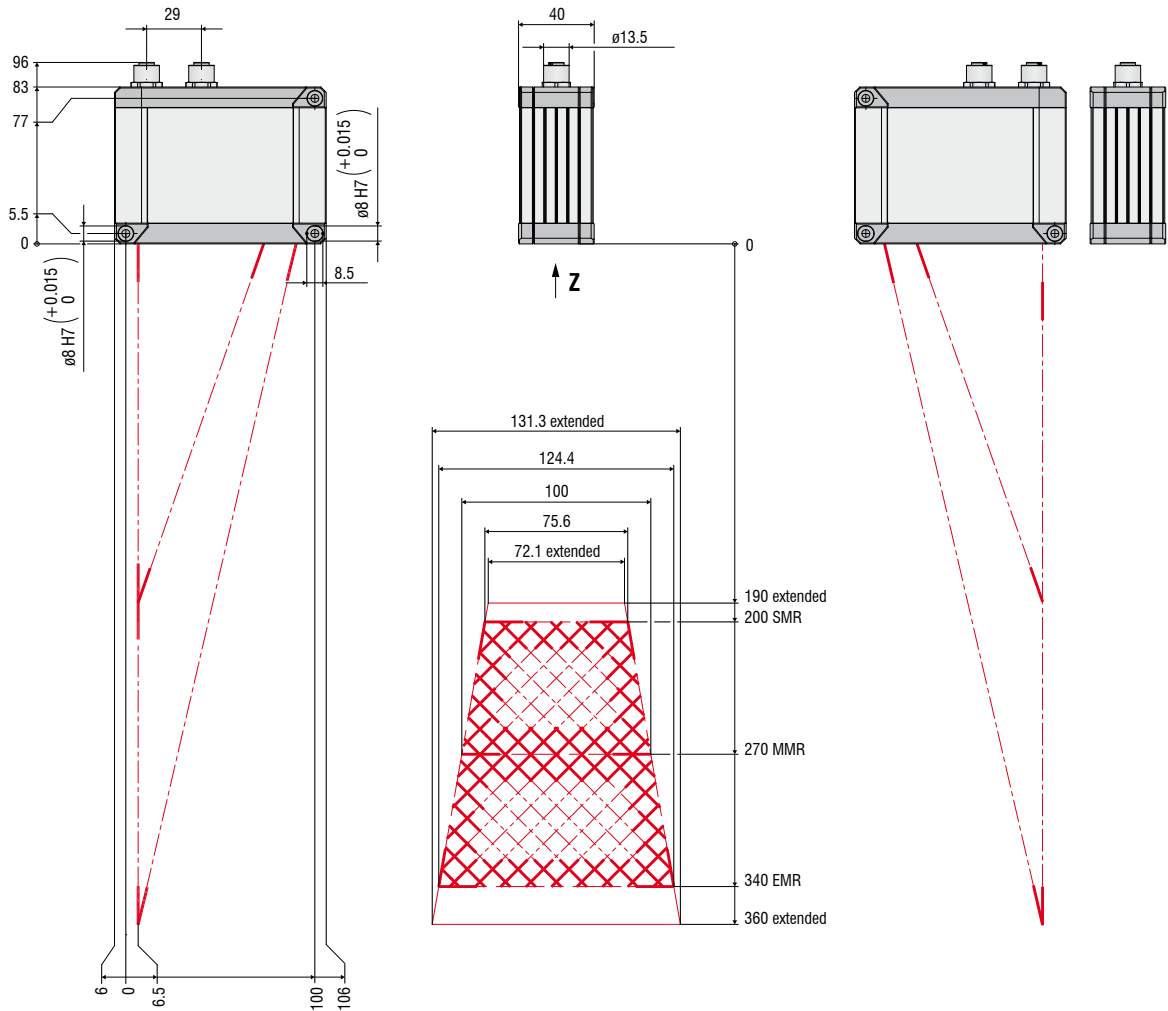ø8 H7/+0.015 (0)

ø8 H7/+0.015 (0)

5.5

0

8.5

120.5   106   100
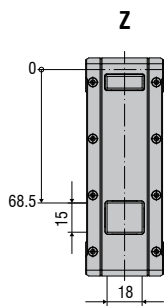
6.5   0   6

LLT30x2-25 / LLT30x0-25

Red Laser   Blue Laser

40
ø13.5
29
96
83
77
ø8 H7 (+0.015 / 0)
ø8 H7 (+0.015 / 0)
5.5
0
12
8.5

0
8.9
31.1

0
(12)

26.8
25
23
77.5 SMR
85 MMR
92.5 EMR

6
0
6.5
100
106

LLT30x2-50 / LLT30x0-50

Red Laser   Blue Laser

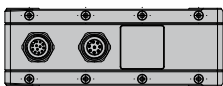40
ø13.5
20
29
96
83
77
ø8 H7 (+0.015 / 0)
ø8 H7 (+0.015 / 0)
5.5
0
10
8.5

0
8.9
31.1
40

0
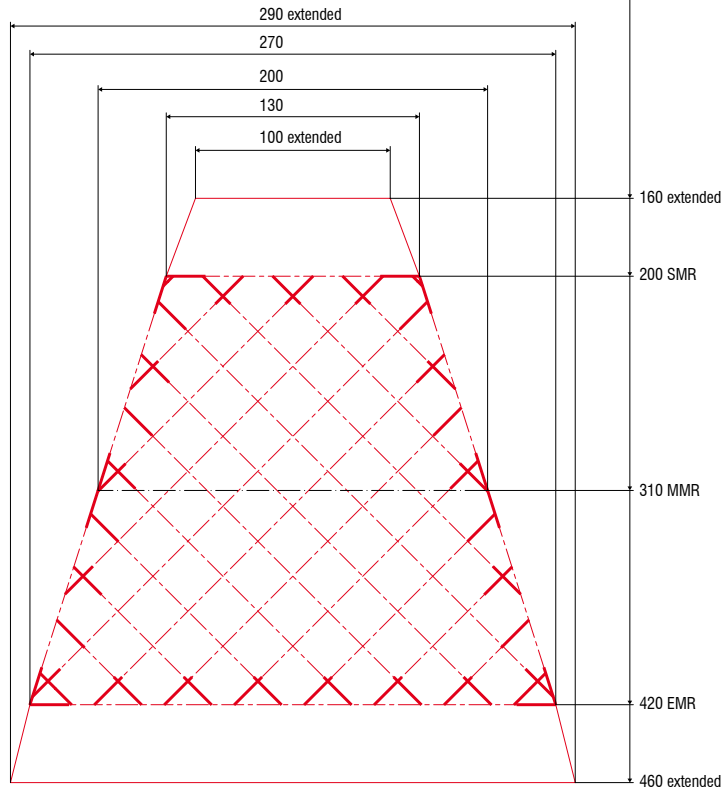(10)

56.5
50
43.3
105 SMR
125 MMR
145 EMR

6
0
6.5
100
106

LLT30x2-100 / LLT30x0-100

Red Laser   Blue Laser

29

96
83
77

5.5
0

$\varnothing 8 \, H7 \left({}^{+0.015}_{0} \right)$

$\varnothing 8 \, H7 \left({}^{+0.015}_{0} \right)$

8.5

40

$\varnothing 13.5$

0

Z

131.3 extended

124.4

100
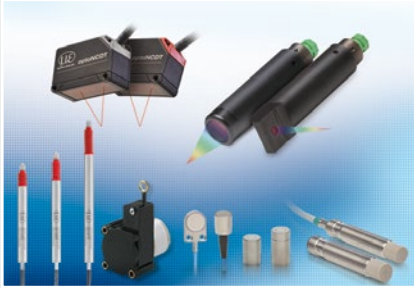
75.6

72.1 extended

190 extended
200 SMR

270 MMR

340 EMR
360 extended

6   0   6.5   100 106

Z

0

74

15

18

LLT30x2-200 / LLT30x0-200

Red Laser

29

96
83
77

5.5

0

H7 (+0.015 / 0)
ø8

8.5

H7 (+0.015 / 0)
ø8

6
0
6.5

100
106

40

ø13.5

0

Z

290 extended

270

200

130

100 extended

160 extended

200 SMR

310 MMR

420 EMR

460 extended

Z

0

68.5

15

18
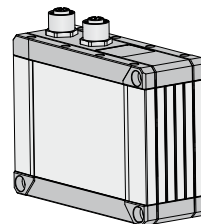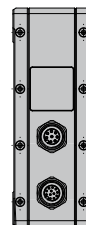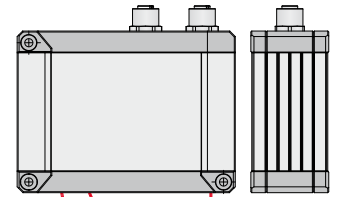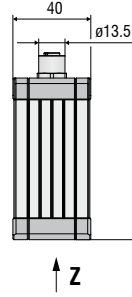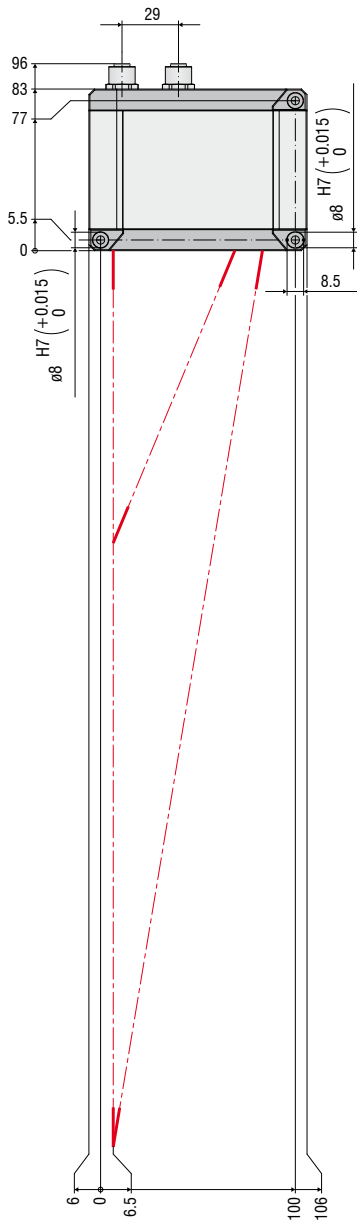
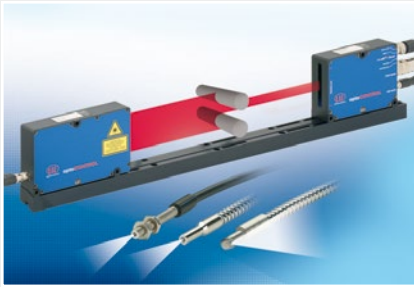# Sensors and Systems from Micro-Epsilon

Sensors and systems for displacement, position and dimension

Sensors and measurement devices for non-contact temperature measurement

Measuring and inspection systems for quality assurance

Optical micrometers, fiber optics, measuring and test amplifiers

Color recognition sensors, LED Analyzers and inline color spectrometers

3D measurement technology for dimensional testing and surface inspection

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