MICRO-EPSILON

More Precision

scanCONTROL // 2D/3D Laser profile sensors

Laser scanner for industrial series applications
scanCONTROL 25x0

Ideal for industrial series applications in production line & automation

Resolution x-axis: 640 points

High signal stability

Also available with patented Blue Laser Technology

Numerous references worldwide

Compatible with **COGNEX® VisionPro**

SMART

PROFILE

Ideal for series applications

scanCONTROL 25x0 laser scanners are designed for industrial measurement tasks. Thanks to their high signal stability, versatility and excellent price-performance ratio, the scanners are particularly suitable for measurement tasks involving large quantities. They measure and evaluate, e.g., angles, steps, gaps, distances and extreme values. Due to their compact design and low weight, these scanners are also suitable for applications with high accelerations, such as on robots.

Available as PROFILE and SMART versions

The scanCONTROL 25x0 series is available as PROFILE and SMART versions. As PROFILE scanners, they provide calibrated profile data that can be further processed on a PC using software provided by the customer. The SMART scanners work independently and provide selected measurement values. All sensor parameters and the desired measurement programs are set in the scanCONTROL Configuration Tools software and saved directly in the internal controller.

Ideal for production and machine monitoring

The scanCONTROL 25x0 series scanners are available in three different measuring ranges with a red or blue laser. Optional accessories, cable types and interface modules allow a wide range of applications in the production line and in machine building.

Article designation

LLT	25	00	-25	/PT	

Options - see below

Measuring range
25 mm
50 mm
100 mm

Class
00=PROFILE
10=SMART

Series
LLT25x0

Laser options*

	/SI	Hardware switch-off of the laser line
	/3B	Increased laser power (class 3B, ≤ 20 mW), e.g., for dark surfaces
	/BL	Blue laser line (405 nm) for (semi-) transparent, red-hot glowing and organic materials

Cable outlet options*

	/PT	Cable directly out of the sensor ("Pigtail") Length 0.3 m

*Options can be combined

Accessories from page 39

Model		LLT25xx-25	LLT25xx-50	LLT25xx-100
Measuring range (z-axis)	Start of measuring range	53.5 mm	70 mm	190 mm
	Mid of measuring range	66 mm	95 mm	240 mm
	End of measuring range	78.5 mm	120 mm	290 mm
	Height of measuring range	25 mm	50 mm	100 mm
Extended measuring range (z-axis)	Start of measuring range	53 mm	65 mm	125 mm
	End of measuring range	79 mm	125 mm	390 mm
Line linearity (z-axis) [1] [2]		2 μm	4 μm	12 μm
		± 0.008 %	± 0.008 %	± 0.012 %
Measuring range (x-axis)	Start of measuring range	23.4 mm	42 mm	83.1 mm
	Mid of measuring range	25 mm	50 mm	100 mm
	End of measuring range	29.1 mm	58 mm	120.8 mm
Extended measuring range (x-axis)	Start of measuring range	23.2 mm	40 mm	58.5 mm
	End of measuring range	29.3 mm	60 mm	143.5 mm
Resolution (x-axis)		640 points/profile		
Profile frequency		up to 2,000 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 [4] [5]		Ethernet (UDP / Modbus TCP); RS422 (ASCII / Modbus RTU) Analog; switch signal PROFINET; EtherCAT; EtherNet/IP		
Control and indicator elements		3x color LEDs for laser, data and error		
Light source	Red Laser	≤ 8 mW		
		Standard: laser class 2M, semiconductor laser 658 nm		
		≤ 20 mW		
		Option: laser class 3B, semiconductor laser 658 nm		
	Blue laser	≤ 8 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		20 °	25 °	25 °
Permissible ambient light	(fluorescent light) [1]	10,000 lx		
Protection class (DIN EN 60529)		IP65 (when connected)		
Vibration (DIN EN 60068-2-27)		2g / 20 ... 500 Hz		
Shock (DIN EN 60068-2-6)		15g / 6 ms		
Temperature range	Storage	-20 ... +70 °C		
	Operation	0 ... +45 °C		
Weight		380 g (without cable)		
Supply voltage		11 … 30 VDC, nominal value 24 V, 500 mA, IEEE 802.3af class 2, Power over Ethernet (PoE)		

[1] Based on the measuring range; measuring object: Micro-Epsilon standard object
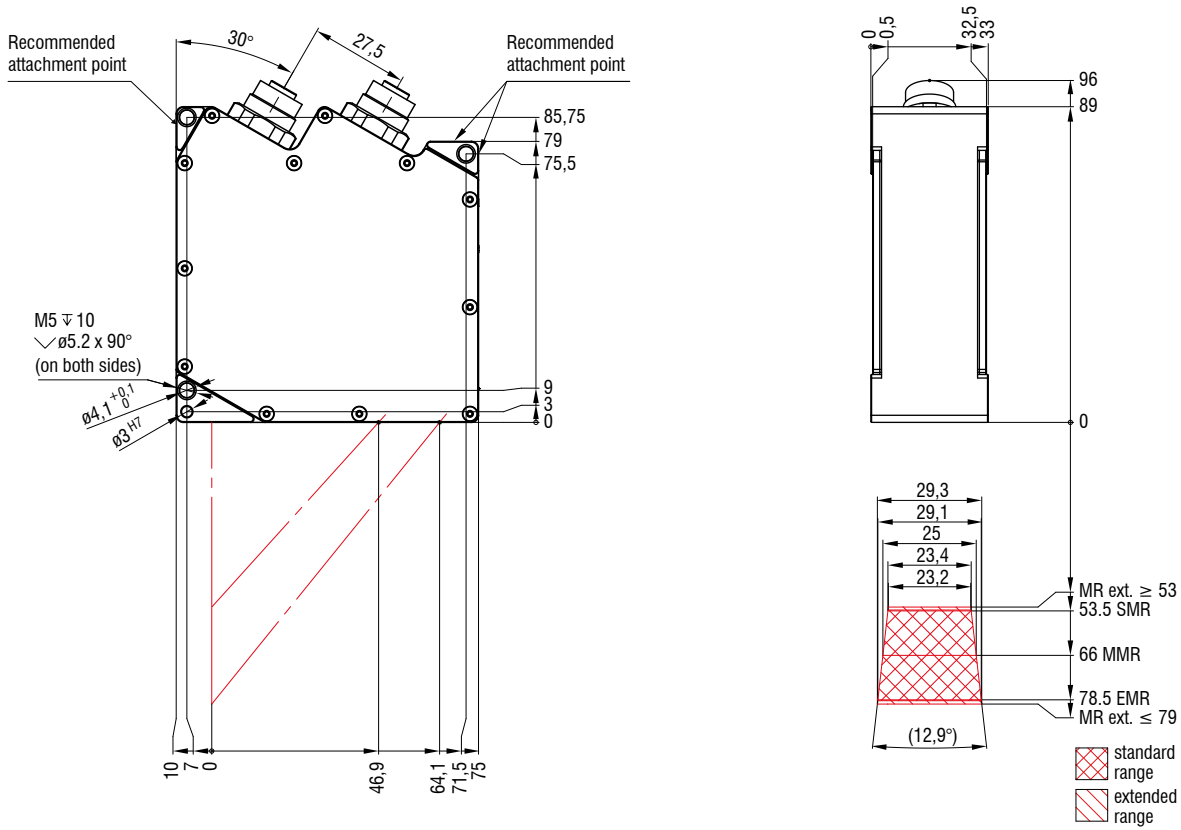[2] According to a one-time averaging across the measuring field (640 points)
[3] RS422 interface, programmable either as serial interface or as input for triggering/synchronization
[4] Analog | switching signal: Only in conjunction with 2D/3D output unit
[5] PROFINET | EtherCAT | EtherNet/IP: Only in conjunction with 2D/3D gateway

LLT25x0-25 / LLT29x0-25

Red Laser   Blue Laser

Recommended attachment point

30°   27,5

Recommended attachment point

85,75
79
75,5

M5 ⩒ 10
⩔ ø5.2 x 90°
(on both sides)

ø4,1 $^{+0,1}_{0}$
ø3 ^{H7}

9
3
0

10
7
0

46,9

64,1
71,5
75

0
0,5

32,5
33

96
89

0

29,3
29,1
25
23,4
23,2

MR ext. ≥ 53
53.5 SMR

66 MMR

78.5 EMR
MR ext. ≤ 79

(12,9°)

standard range

extended range
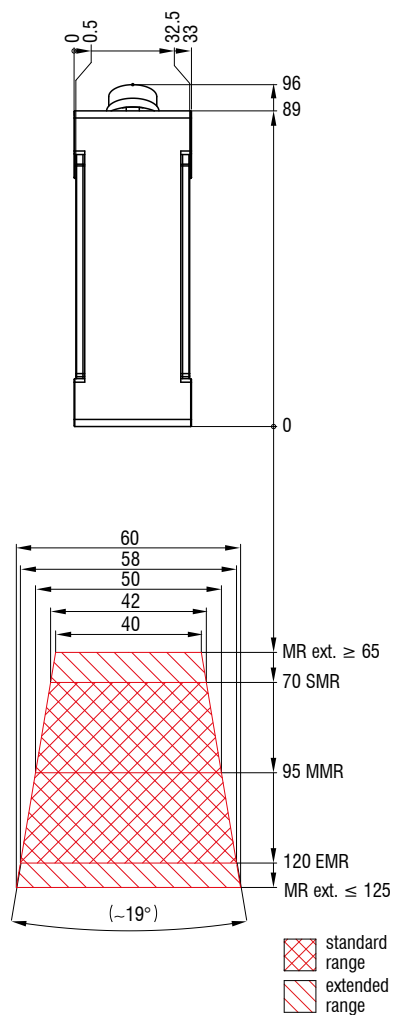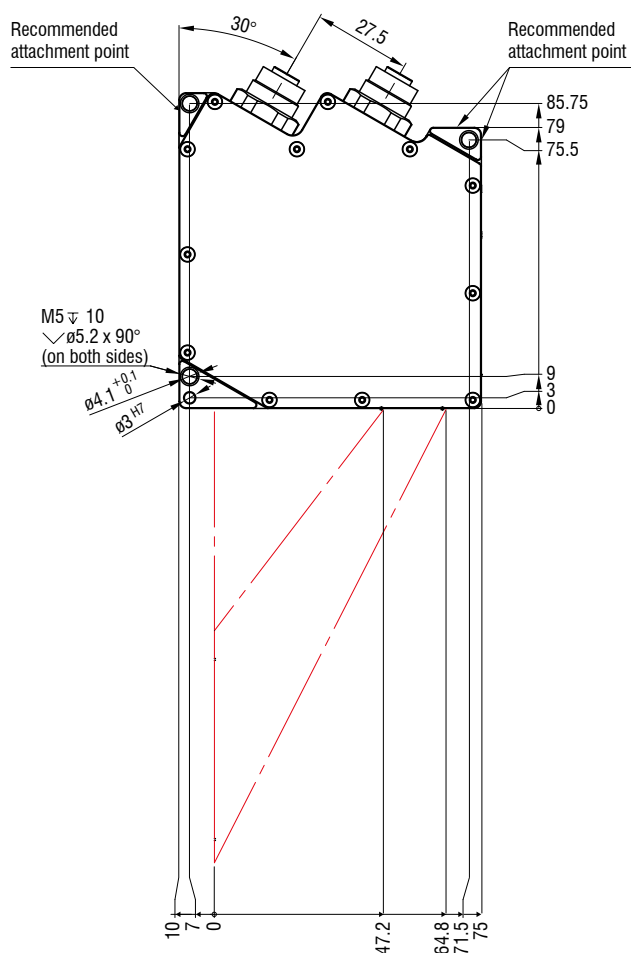
(dimensions in mm, not to scale)

Dimensions and measuring ranges
scanCONTROL

LLT25x0-50 / LLT29x0-50

Red Laser | Blue Laser

Recommended attachment point

Recommended attachment point

30°

27.5

85.75
79
75.5

M5 ⊽ 10
⌵ ø5.2 x 90°
(on both sides)

ø4.1 $^{+0.1}_{0}$

ø3 H7

9
3
0

10
7
0

47.2

64.8
71.5
75

0
0.5

32.5
33

96
89

0

60
58
50
42
40

MR ext. ≥ 65

70 SMR

95 MMR

120 EMR
MR ext. ≤ 125

(~19°)

standard range

extended range

(dimensions in mm, not to scale)

LLT25x0-100 / LLT29x0-100

Red Laser   Blue Laser

Recommended attachment point

30°   27.5

Recommended attachment point

85.75
79
75.5

0.5
0.5
32.5
33

96
89

M5 ⊽ 10
⌵ ø5.2 x 90°
(on both sides)

ø4.1 +0.1/0
ø3 H7

9
3
0

0

143.5
120.8
100
83.1
58.5

MR ext. ≥ 125

190 SMR

240 MMR

290 EMR

10 7 0   48 65.5 71.5 75

MR ext. ≤ 390

(21.4°)

standard range

extended range

(dimensions in mm, not to scale)

19
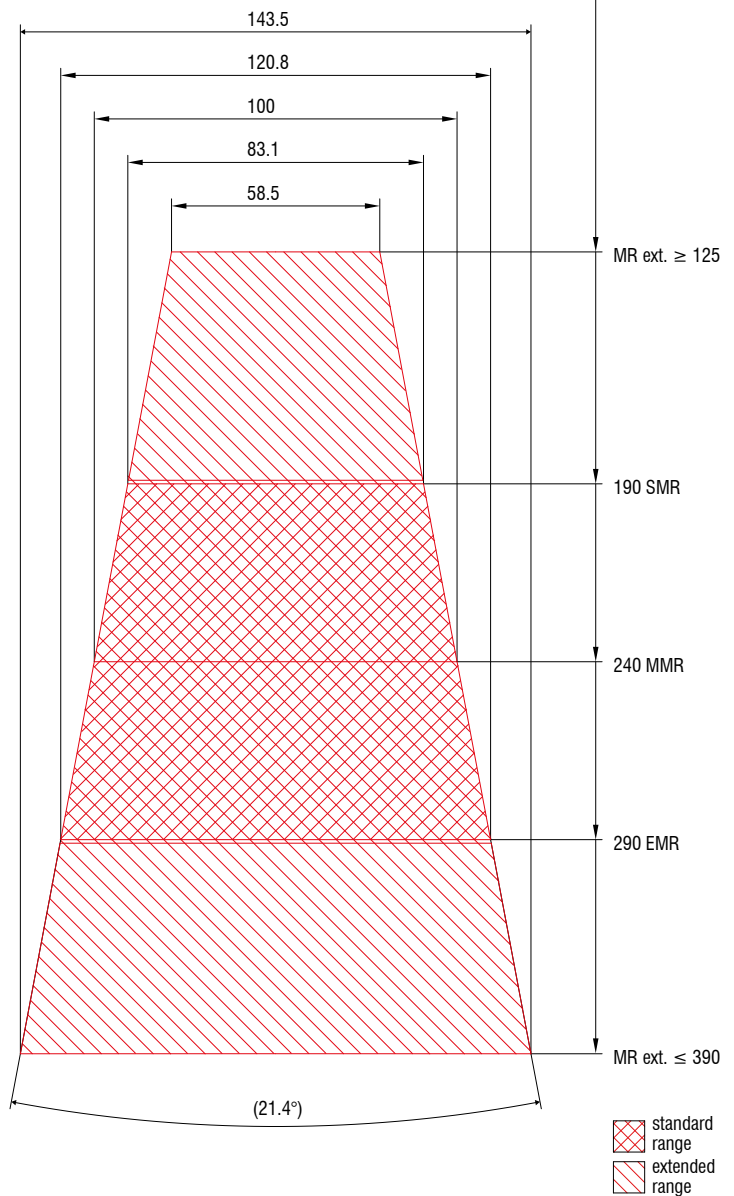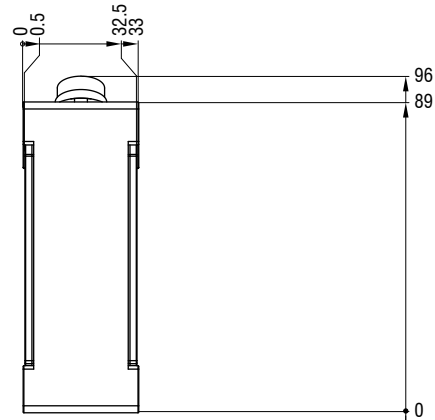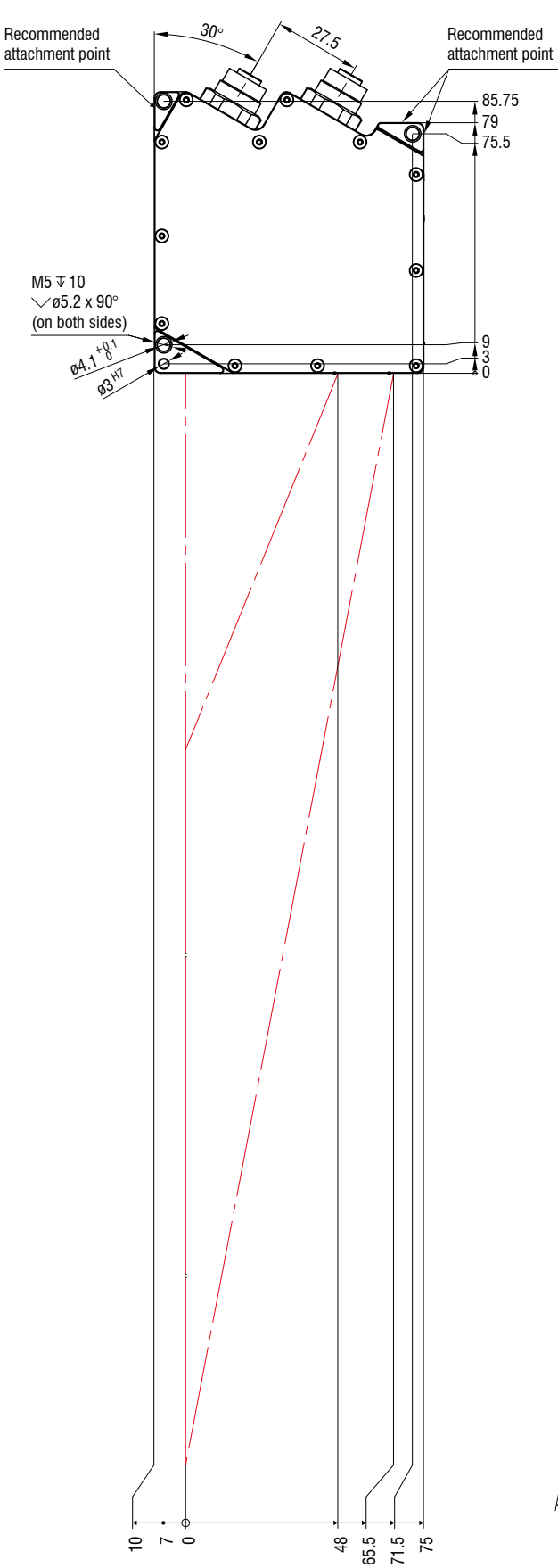
Accessories
scanCONTROL

2D/3D Gateway

PROFINET / EtherCAT / EtherNet/IP for all `SMART` **scanners**

One 2D/3D Gateway is connectable with up to 4 sensors. Operation of more than one sensor requires a switch. The 2D/3D Gateway communicates with the scanCONTROL SMART sensor via Ethernet Modbus. The resultant values are then converted to PROFINET, EtherCAT or EtherNet/IP. The customer carries out the parameter setup with a detailed instruction manual. The gateway can also be parameterized in advance at the factory.

Models

6414142	2D/3D Gateway		Fieldbus coupler, configurable for PROFINET, EtherNet/IP and EtherCAT
6414142.001	2D/3D Gateway, pre-parameterized,		Pre-parameterized to customer log and IP addresses

Number of sensors on the gateway	Maximum measurement frequency
1	500 Hz
2	500 Hz
3	330 Hz
4	250 Hz

NEW

Higher measurement frequencies are also possible with the 30xx series due to the Modbus bundling option.

2D/3D Gateway

2D/3D Output Unit

Analog signals / digital switch signals for all `SMART` **scanners**

The 2D/3D Output Unit is addressed via Ethernet and outputs analog and digital signals. Different output terminals can be connected to the fieldbus coupler.

Models

6414073	2D/3D Output Unit Basic/ET	Fieldbus coupler with filter module and bus end terminal
0325131	OU-DigitalOut/8-channel/DC24V/0.5A/negative	8-channel digital output terminal; DC 24 V; 0.5 A; negative switching
0325115	OU-DigitalOut/8-channel/DC24V/0.5A/positive	8-channel digital output terminal; DC 24 V; 0.5 A; positive switching
0325116	OU-AnalogOut/4-channel/±10 V	4-channel analog output terminal; ±10 V
0325135	OU-AnalogOut/4-channel/0-10 V	4-channel analog output terminal; 0-10 V
0325132	OU-AnalogOut/4-channel/0-20 mA	4-channel analog output terminal; 0-20 mA
0325133	OU-AnalogOut/4-channel/4-20 mA	4-channel analog output terminal; 4-20 mA

Other terminals available on request.

Analog

Digital

Accessories
scanCONTROL
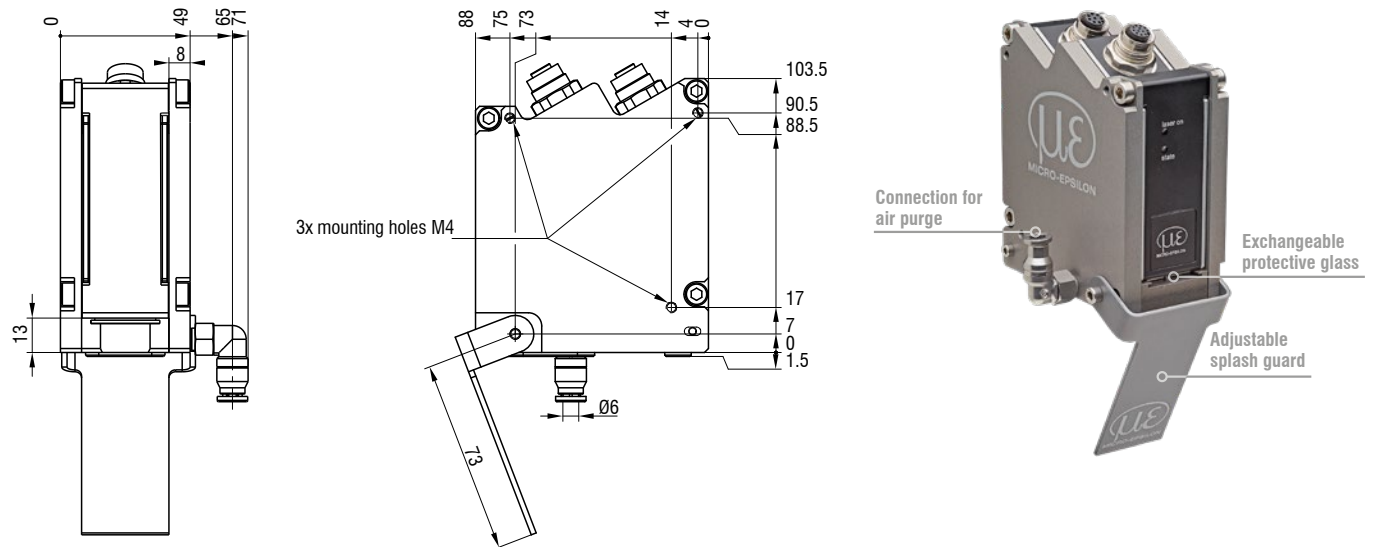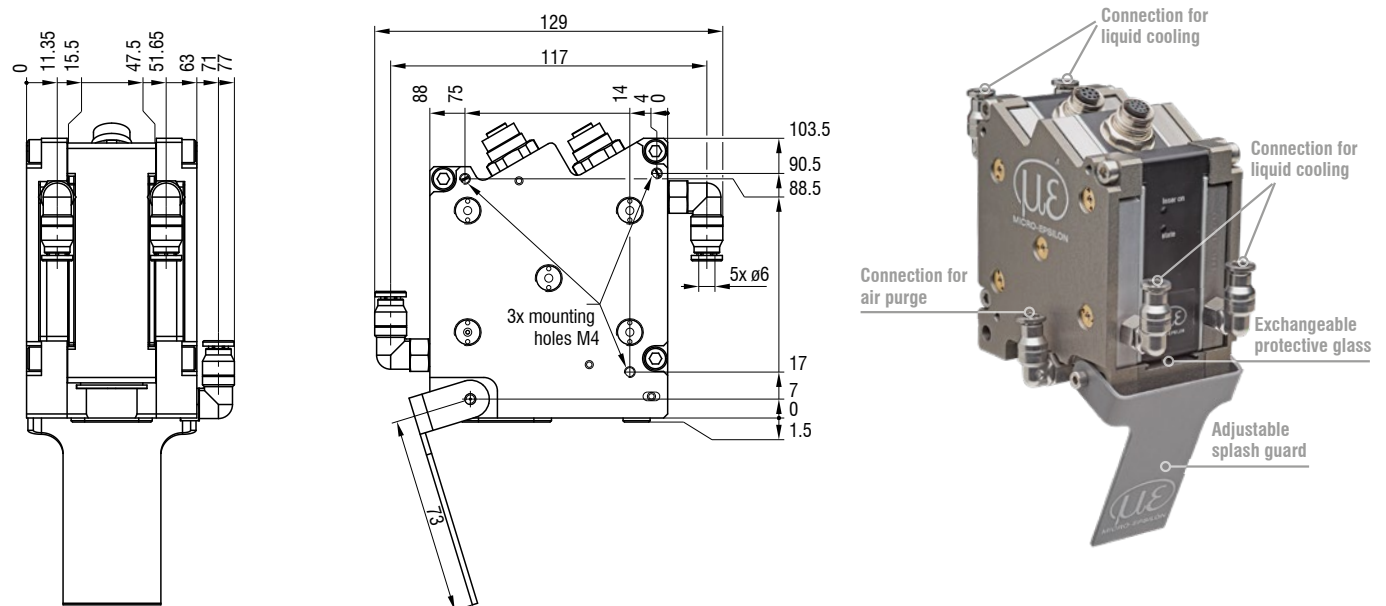
Housings for protection and cooling for LLT25x0 and 29xx

(Not available for scanCONTROL 29xx-10/BL)

Protective housing with blow-out system

3x mounting holes M4

Connection for
air purge

Exchangeable
protective glass

Adjustable
splash guard

Ø6

Protective housing with blow-out system and water cooling

3x mounting
holes M4

5x ø6

Connection for
liquid cooling

Connection for
liquid cooling

Connection for
air purge

Exchangeable
protective glass

Adjustable
splash guard

| Art. no.	Model	Description
2105058	Protective housing for LLT25/LLT29	Adaptive protective housing for LLT25/LLT29
2105059	Protective cooling housing LLT25/LLT29	Adaptive protective and cooling housing for LLT25/LLT29
0755075	Exchangeable glass for protective housing LLT25/LLT29	Exchangeable glass for protection / cooling concept LLT25/LLT29, pack of 50 pieces

Accessories
scanCONTROL

Connection cables

PCR3000-x Multi-function cable

Cable for power supply, digital inputs (TTL or HTL),
RS422 (half-duplex);
suitable for drag chains and robots
Cable length (m): 2 / 5 / 10 / 15 / 20 / 25 / 35

47.5

ø15

12 braids

Sensor connector
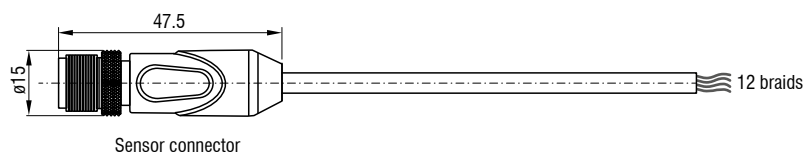
SCR3000A-x Ethernet connection cable

Cable for parameter setting, value and profile transmission;
suitable for drag chains and robots
Cable length (m): 0.5 / 2 / 5 / 10 / 15 / 20 / 25 / 35

47.5

ø15

52.6

11.8

8.1

Sensor connector

RJ45
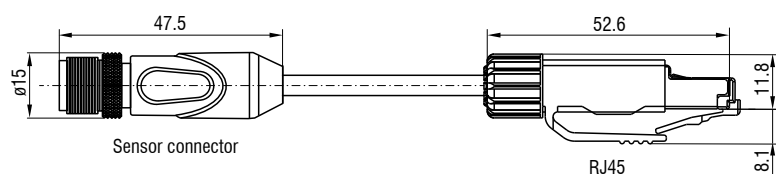
Other accessories

Art. no.	Model	Description
0323478	Connector/12-pin/Multifunction for LLT25/29/30 series	Plug for multifunction port
0323479	Connector/8-pin/Ethernet for LLT25/29/30 series	Plug for Ethernet socket
2420067	PS25/29/30	Power supply unit for scanCONTROL
0254111	Case for LLT25/29/30 (up to MR 200)	Transport case for scanCONTROL sensors incl. measuring stand
0254153	Case for LLT30 series, MR 430/600	Transport case for scanCONTROL sensors incl. measuring stand
2960097	Measuring stand for LLT25/26/29/30 series	Measuring stand with sensor adapter board, flexible rod and clamp base
2960115	Measuring stand for LLT30 series, MR 430/600	Measuring stand with sensor adapter board, flexible rod and clamp base

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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