



MICRO-EPSILON

More Precision

scanCONTROL // 2D/3D Laser profile sensors



Compact laser scanner with high precision

scanCONTROL 29x0

- 2D/3D** Ideal for precise 2D/3D measurements
- Resolution x-axis: 1,280 points**
- High accuracy for the detection of finest details**
- Profile frequency up to 2,000 Hz**
- Also available with patented Blue Laser Technology**
- Compatible with COGNEX® VisionPro**



Compact design for precise measurements

scanCONTROL 29x0 laser scanners are designed for industrial measurement tasks where compact design and high accuracy are required. Thanks to their high resolution, versatility and excellent price-performance ratio, the scanners are particularly suitable for static and dynamic applications, e.g., on robots. They measure and evaluate, e.g., angles, steps, gaps, distances and extreme values.

Available as PROFILE and SMART versions

The scanCONTROL 29x0 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.

Short measuring range with high resolution

With a laser line of just 10 mm, the scanCONTROL 29x0-10/BL models recognize the finest of details and structures. The high profile resolution combined with the blue laser line allow for maximum precision in versatile applications, e.g., monitoring in electronics production.

Article designation

LLT	29	00	-25	/SI
Options - see below				
Measuring range 10 mm (only Blue Laser) 25 mm 50 mm 100 mm				
Class 00=PROFILE 10=SMART 50=HIGHSPEED 60=HIGHSPEED SMART				
Series LLT29x0				

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
	/VT	Cable directly out of the sensor ("Variable Tail") Length 0.1 ... 1.0 m (freely selectable)

*Options can be combined

Accessories from page 39

Model		LLT29xx-10/BL	LLT29xx-25	LLT29xx-50	LLT29xx-100
Measuring range (z-axis)	Start of measuring range	52.5 mm	53.5 mm	70 mm	190 mm
	Mid of measuring range	56.5 mm	66 mm	95 mm	240 mm
	End of measuring range	60.5 mm	78.5 mm	120 mm	290 mm
	Height of measuring range	8 mm	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]		1 μm	2 μm	4 μm	12 μm
		± 0.0125 %	± 0.008 %	± 0.008 %	± 0.012 %
Measuring range (x-axis)	Start of measuring range	9.4 mm	23.4 mm	42 mm	83.1 mm
	Mid of measuring range	10 mm	25 mm	50 mm	100 mm
	End of measuring range	10.7 mm	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)		1,280 points/profile			
Profile frequency	Standard	up to 300 Hz			
	High speed	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		10 °	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		440 g (without cable)	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

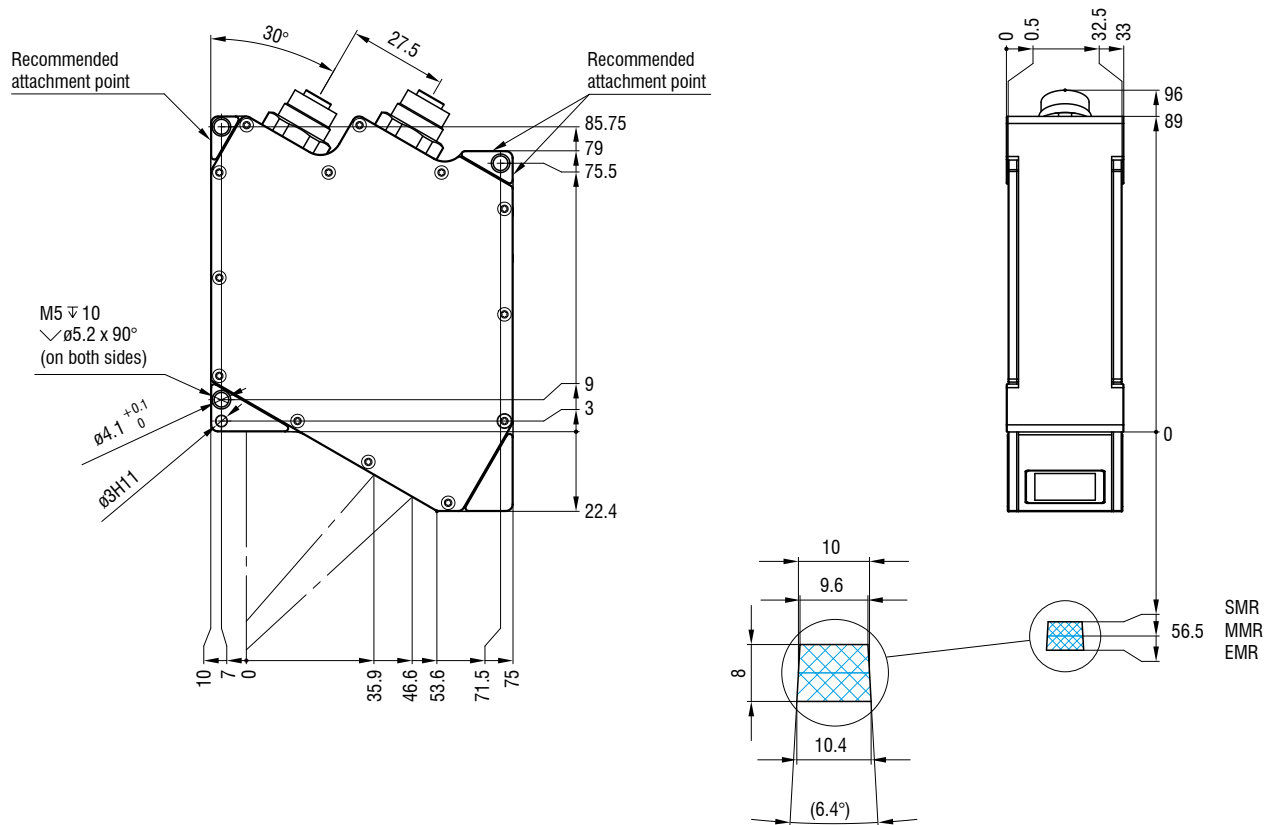
^[5] PROFINET | EtherCAT | EtherNet/IP: Only in conjunction with 2D/3D gateway

Dimensions and measuring ranges

scanCONTROL

LLT29x0-10/BL

Blue Laser



(dimensions in mm, not to scale)

Red Laser Blue Laser

Technical drawing of a 1000 mm high container. The drawing shows a side view of the container with dimensions and material specifications.

Dimensions:

- Top flange width: 0, 0,5, 32,5, 33
- Height from top flange to bottom flange: 96, 89
- Height from bottom flange to base: 0
- Bottom flange width: 29,3, 29,1, 25, 23,4, 23,2
- Bottom flange angle: (12,9°)

Material Specifications:

- MR ext. ≥ 53
- 53.5 SMR
- 66 MMR
- 78.5 EMR
- MR ext. ≤ 79

Legend:

- standard range (hatched area)
- extended range (hatched area)

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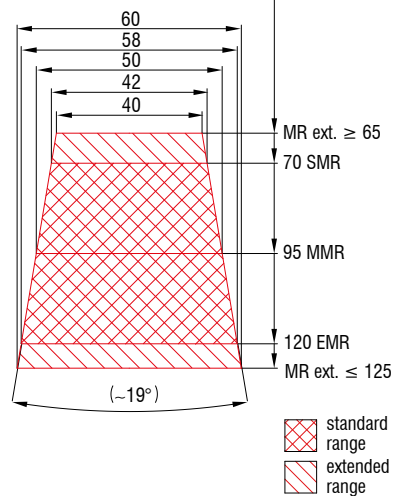
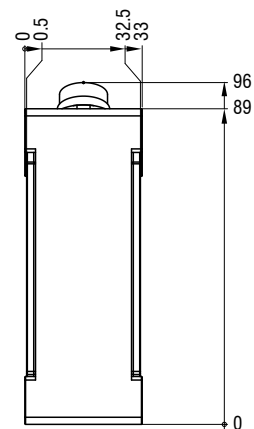
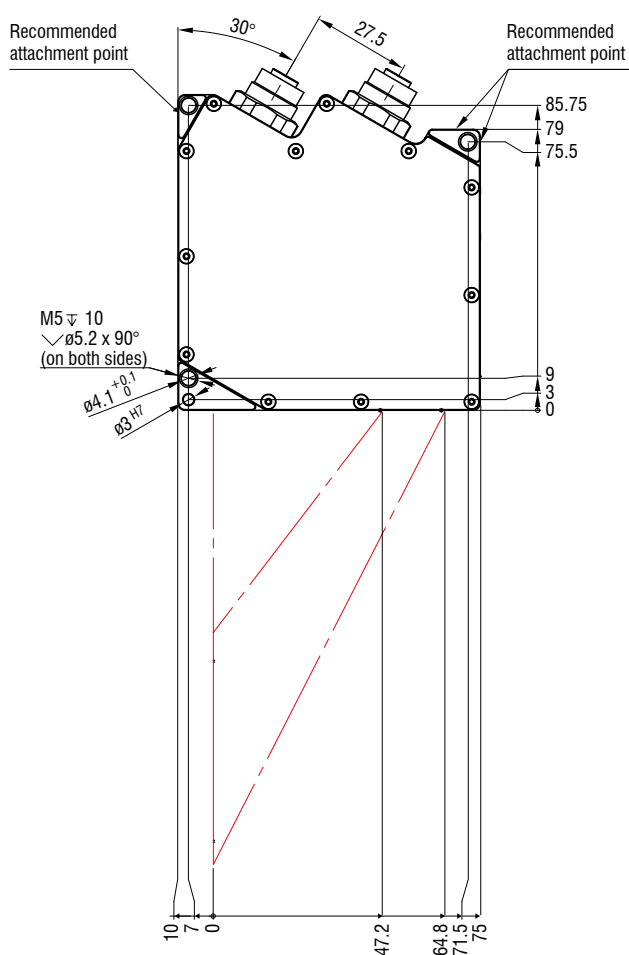
Dimensions and measuring ranges

scanCONTROL

LLT25x0-50 / LLT29x0-50

Red Laser

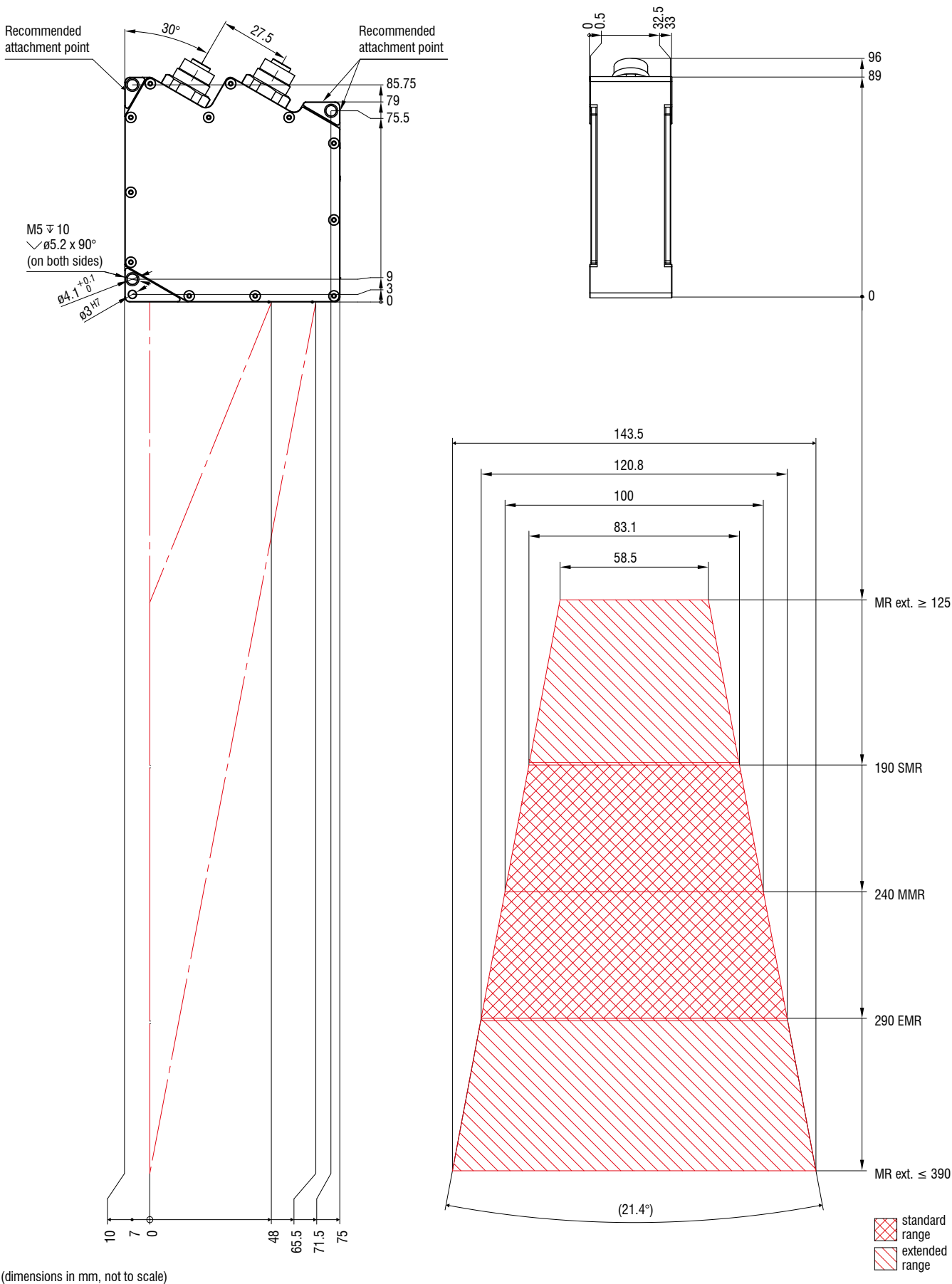
Blue Laser



(dimensions in mm, not to scale)

LLT25x0-100 / LLT29x0-100

Red Laser Blue Laser



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

6414142.001 2D/3D Gateway, pre-parameterized,

Fieldbus coupler, configurable for PROFINET, EtherNet/IP and EtherCAT

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

EtherCAT

PROFI
NET

EtherNet/IP

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

0325131 OU-DigitalOut/8-channel/DC24V/0.5A/negative

0325115 OU-DigitalOut/8-channel/DC24V/0.5A/positive

0325116 OU-AnalogOut/4-channel/±10 V

0325135 OU-AnalogOut/4-channel/0-10 V

0325132 OU-AnalogOut/4-channel/0-20 mA

0325133 OU-AnalogOut/4-channel/4-20 mA

Fieldbus coupler with filter module and bus end terminal

8-channel digital output terminal; DC 24 V; 0.5 A; negative switching

8-channel digital output terminal; DC 24 V; 0.5 A; positive switching

4-channel analog output terminal; ±10 V

4-channel analog output terminal; 0-10 V

4-channel analog output terminal; 0-20 mA

4-channel analog output terminal; 4-20 mA

Other terminals available on request.



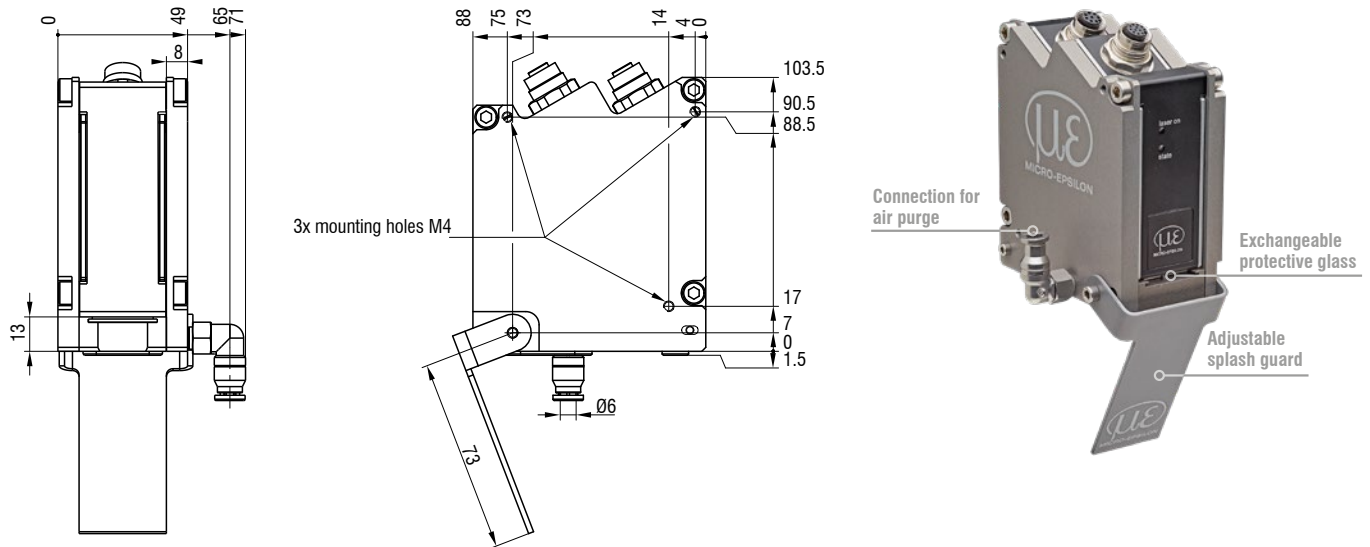
Analog

Digital

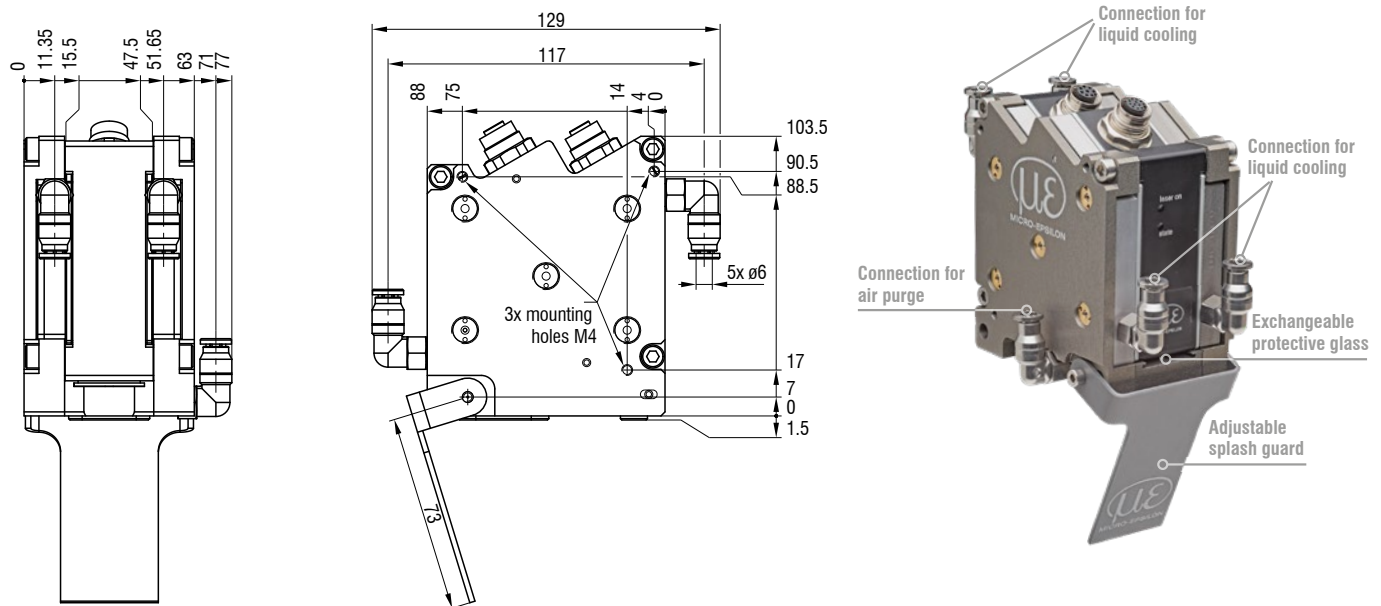
Housings for protection and cooling for LLT25x0 and 29xx

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

Protective housing with blow-out system



Protective housing with blow-out system and water cooling



Art. no. Model

2105058	Protective housing for LLT25/LLT29
2105059	Protective cooling housing LLT25/LLT29
0755075	Exchangeable glass for protective housing LLT25/LLT29

Description

Adaptive protective housing for LLT25/LLT29
Adaptive protective and cooling housing for LLT25/LLT29
Exchangeable glass for protection / cooling concept LLT25/LLT29, pack of 50 pieces

Connection cables

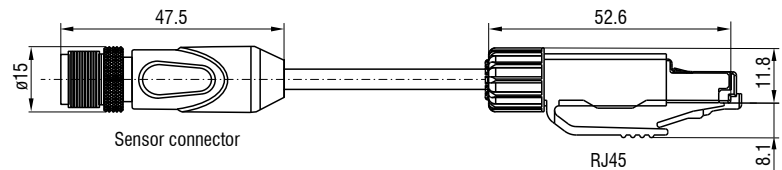
PCR3000-x Multi-function cable

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



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



Other accessories

Art. no. Model

0323478 Connector/12-pin/Multifunction for LLT25/29/30 series
0323479 Connector/8-pin/Ethernet for LLT25/29/30 series
2420067 PS25/29/30
0254111 Case for LLT25/29/30 (up to MR 200)
0254153 Case for LLT30 series, MR 430/600
2960097 Measuring stand for LLT25/26/29/30 series
2960115 Measuring stand for LLT30 series, MR 430/600

Description

Plug for multifunction port
Plug for Ethernet socket
Power supply unit for scanCONTROL
Transport case for scanCONTROL sensors incl. measuring stand
Transport case for scanCONTROL sensors incl. measuring stand
Measuring stand with sensor adapter board, flexible rod and clamp base
Measuring stand with sensor adapter board, flexible rod and clamp base

Sensors and Systems from Micro-Epsilon



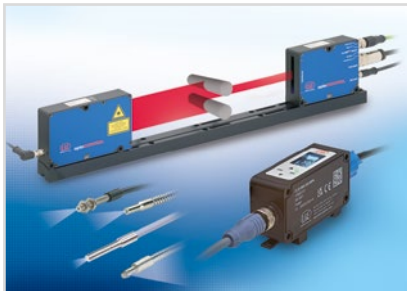
Sensors and systems for displacement, distance and position



Sensors and measurement devices for non-contact temperature measurement



Measuring and inspection systems for metal strips, plastics and rubber



Optical micrometers and fiber optics, measuring and test amplifiers



Color recognition sensors, LED analyzers and inline color spectrometers



3D measurement technology for dimensional testing and surface inspection

