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**<br>25 mm<br>50 mm<br>100 mm | |
| | | **Class**<br>00=PROFILE<br>10=SMART | | |
| | **Series**<br>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")<br>Length 0.3 m |

*Options can be combined

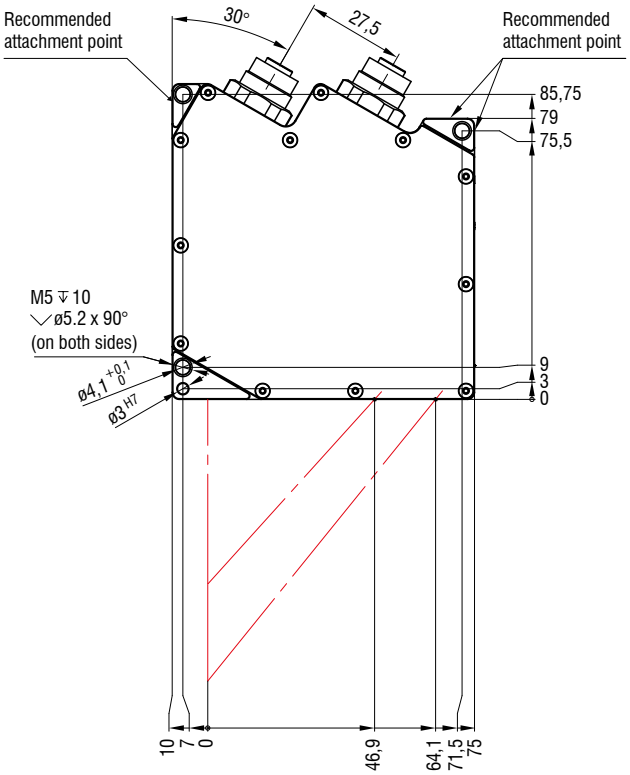
Accessories from page 39

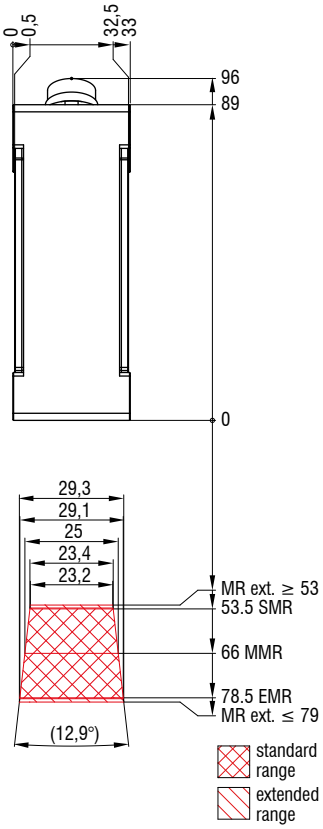
| Model | | LLT25xx-25 | LLT25xx-50 | LLT25xx-100 |
|---|---|---|---|---|
| Measuring range (z-axis) | Start of measuring range | 53.5 mm | 70 mm | 190 mm |
| | Mid of measuring range | 66 mm | 95 mm | 240 mm |
| | End of measuring range | 78.5 mm | 120 mm | 290 mm |
| | Height of measuring range | 25 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)<br>Analog; switch signal<br>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



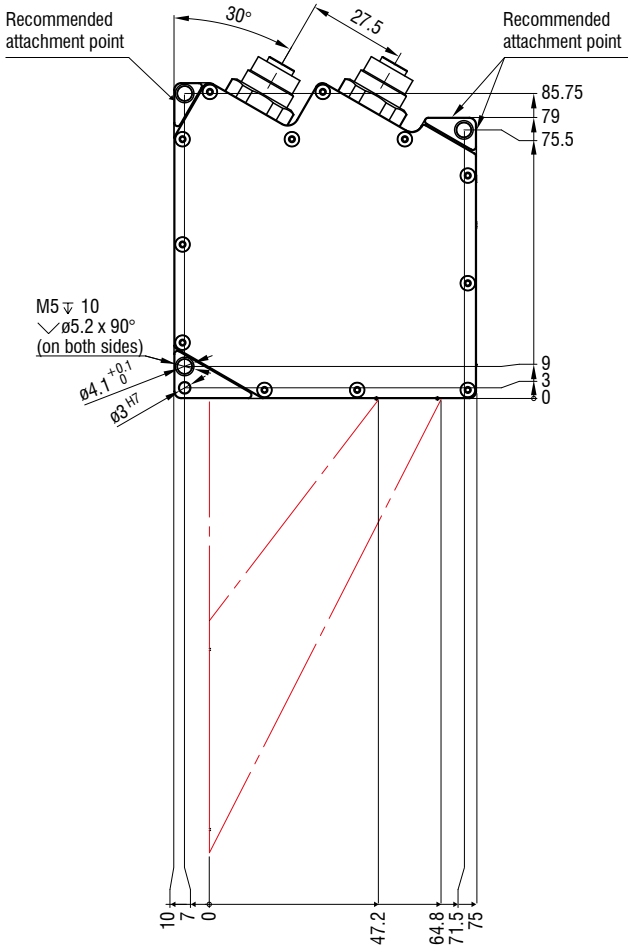



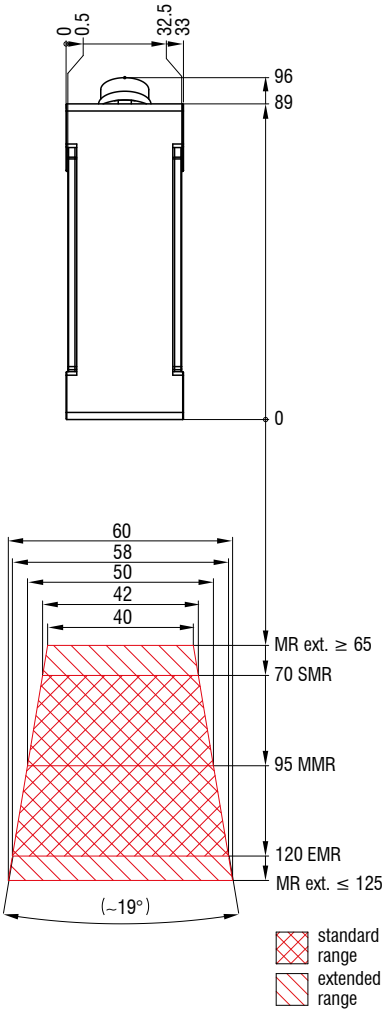

(dimensions in mm, not to scale)

# Dimensions and measuring ranges
# scanCONTROL

## LLT25x0-50 / LLT29x0-50

Red Laser | Blue Laser

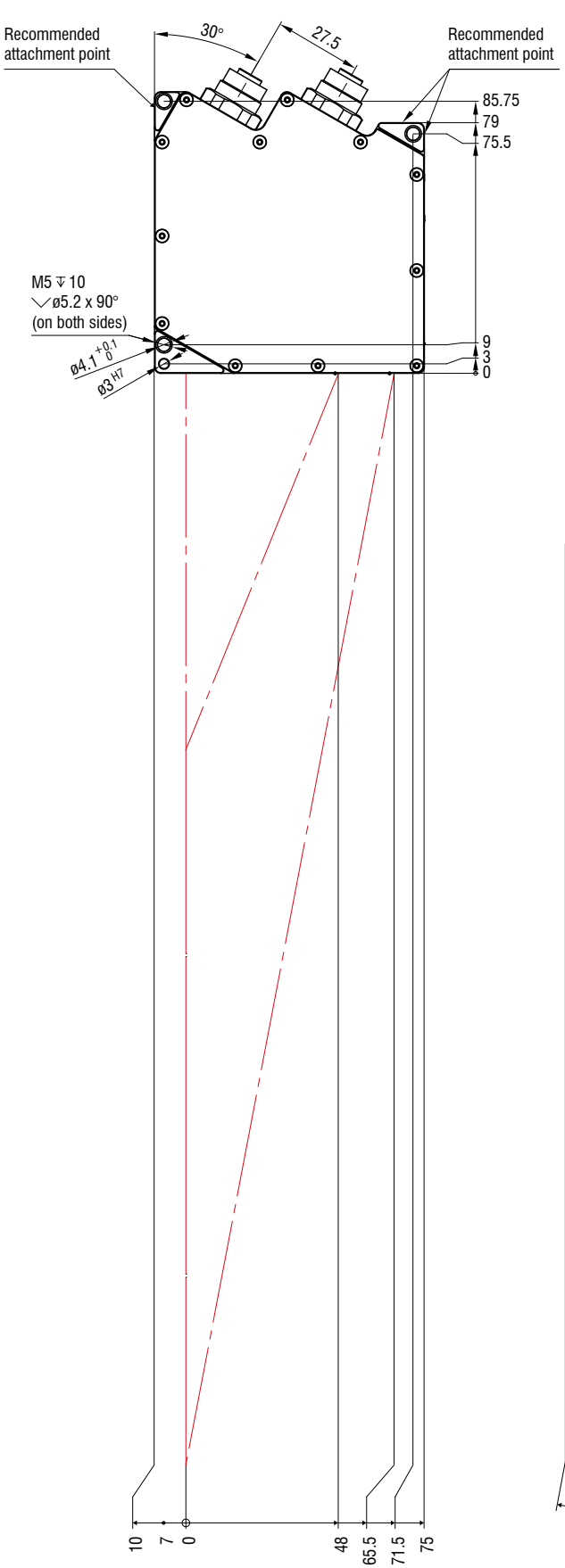


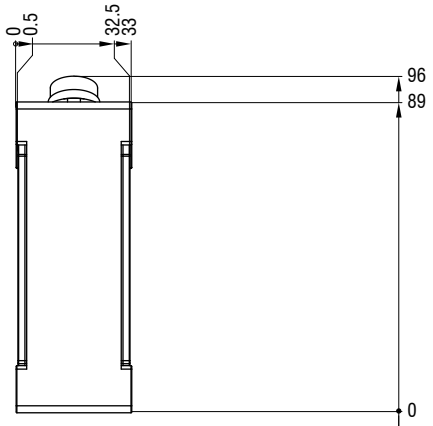



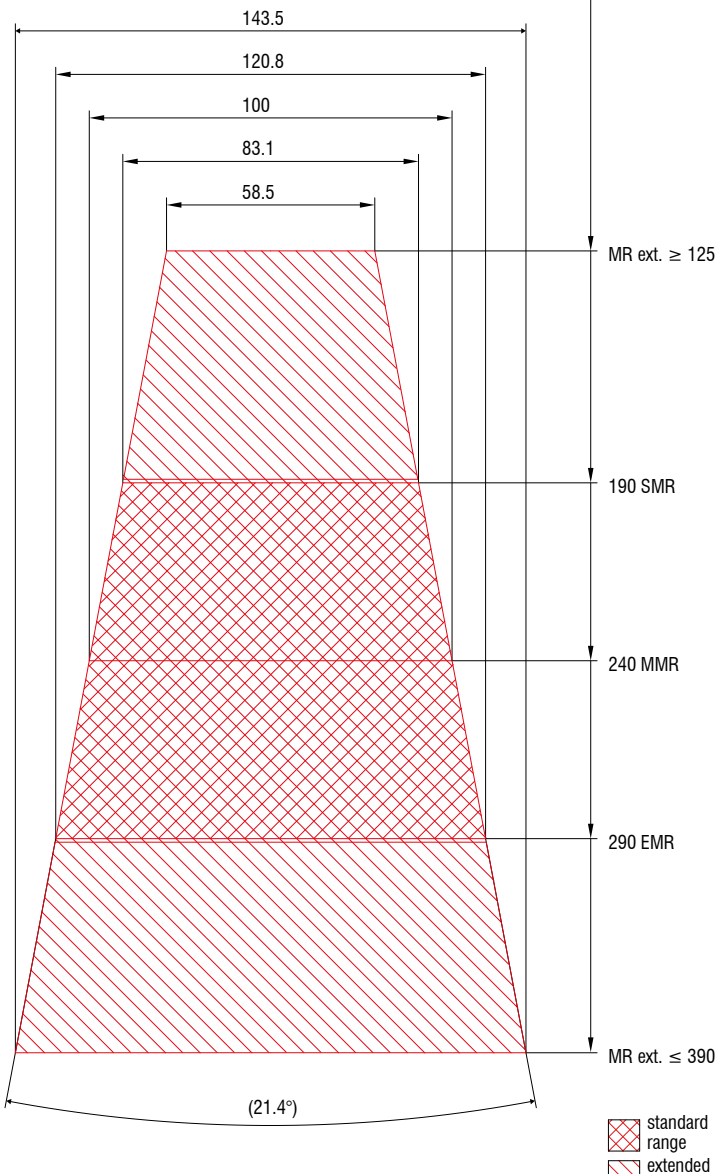

(dimensions in mm, not to scale)

## LLT25x0-100 / LLT29x0-100

Red Laser | Blue Laser




(dimensions in mm, not to scale)

# 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.

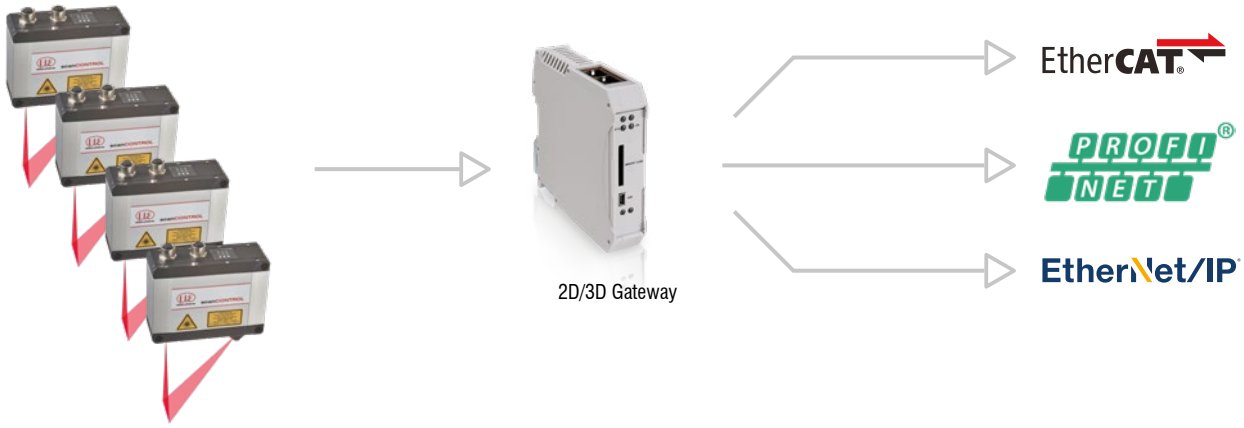
**Models**

| | | |
|---|---|---|
| 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 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**

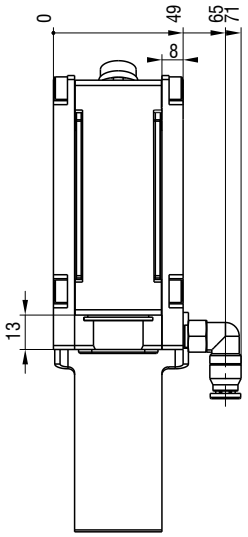
| | | |
|---|---|---|
| 6414073 | 2D/3D Output Unit Basic/ET | Fieldbus coupler with filter module and bus end terminal |
| 0325131 | OU-DigitalOut/8-channel/DC24V/0.5A/negative | 8-channel digital output terminal; DC 24 V; 0.5 A; negative switching |
| 0325115 | OU-DigitalOut/8-channel/DC24V/0.5A/positive | 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 |

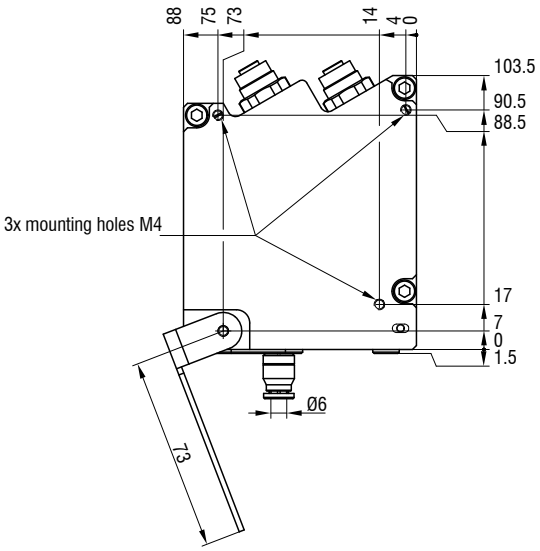
Other terminals available on request.

### Housings for protection and cooling for LLT25x0 and 29xx

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

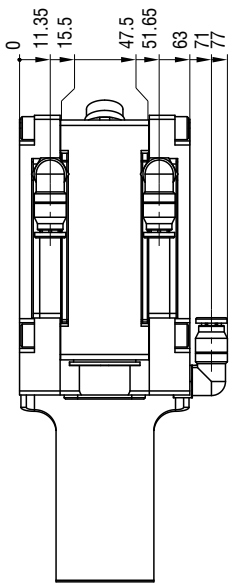
#### Protective housing with blow-out system

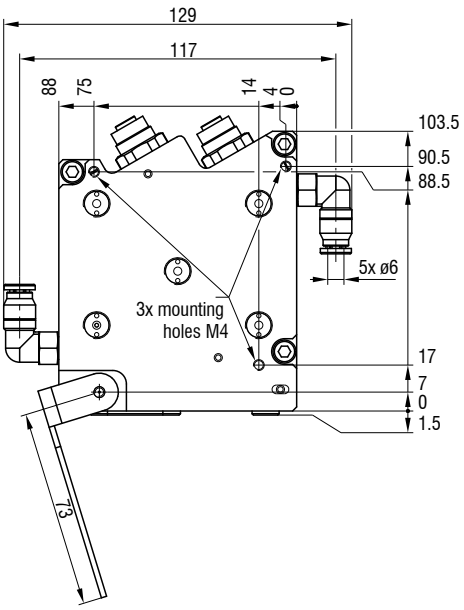


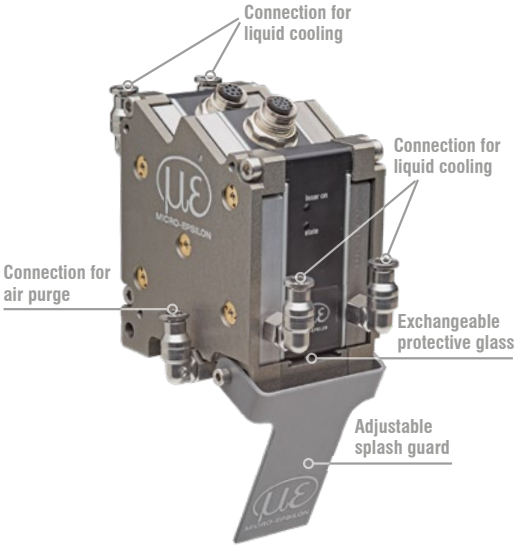





#### Protective housing with blow-out system and water cooling



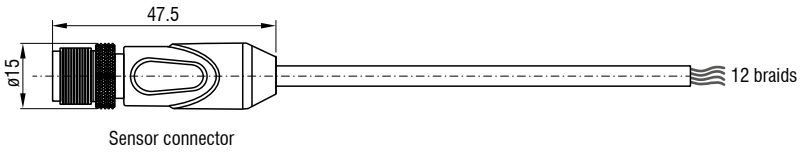




| Art. no. | Model | Description |
|---|---|---|
| 2105058 | Protective housing for LLT25/LLT29 | Adaptive protective housing for LLT25/LLT29 |
| 2105059 | Protective cooling housing LLT25/LLT29 | Adaptive protective and cooling housing for LLT25/LLT29 |
| 0755075 | Exchangeable glass for protective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

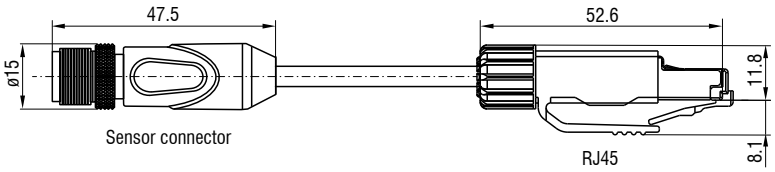
# Accessories
# scanCONTROL

## 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




**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

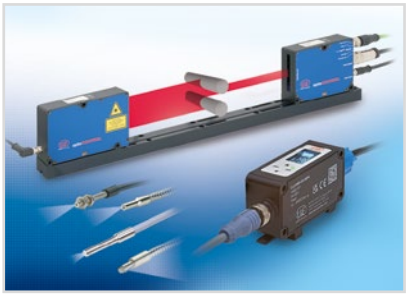
| Art. no. | Model | Description |
|---|---|---|
| 0323478 | Connector/12-pin/Multifunction for LLT25/29/30 series | Plug for multifunction port |
| 0323479 | Connector/8-pin/Ethernet for LLT25/29/30 series | Plug for Ethernet socket |
| 2420067 | PS25/29/30 | Power supply unit for scanCONTROL |
| 0254111 | 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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