

M7LL

Laser Distance Sensor

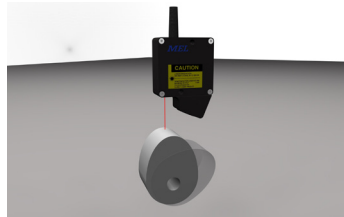
for automated manufacturing
with Ethernet interface
to connect with PLC



- Ethernet interface
- Analog output
- Ranges 0,5 mm up to 400 mm
- Measuring frequency 10 kHz
- Low noise
- Reliable results also with white/black transition
- Replacable protection glasses

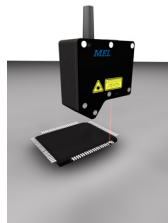
The analog sensors of series M7LL use a PSD for their receiver optics. This assures a continuous position measurement at very fast movements. Replacable protection glasses and a robust casing allow the use even in dirty environments.

Applications:



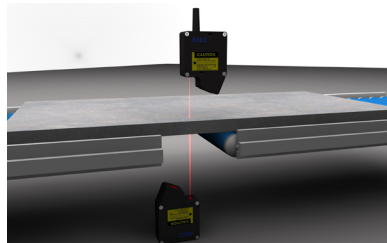
Roundness Measurement:

The sensor is mounted in a defined distance to the rotating object. Even smallest deviations from roundness are recognized due to a continuous displacement measurement.



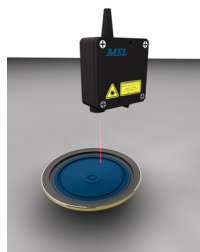
IC check:

To avoid error during placement the ICs are detected by a M7LL laser sensor. Bent or absent pins are realized and can be signaled to the machine control. Thus waste will be recognized immediately and the appropriate corrective action can be initiated without delay.



Thickness Measurement:

Two sensors are measuring onto the top and the bottom side of the target. The thickness of the object results from the measured distance values.



Vibration Measurement:

The M7LL measures die deflection of a membrane at vibrations up to 10 kHz.



Error and technical modification reserved

DB-M7LL_2-07-E

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Specifications

Sensor M7LL/		0.5	2	4	10	20	50	100	200	400
Measuring range	[mm]	0.5	2	4	10	20	50	100	200	400
Range begin ¹	[mm]	23.75	23	22	40	55	115	170	240	480
Linearity ±	[μm]	1	4	8	20	40	100	200	400	700
Resolution ²	[μm]	0.3	1.3	2.6	6.5	13	32.5	65	200	600
Resolution ³	[μm]	0.02	0.1	0.2	0.5	1	2.5	6	20	60
Light spot diameter	[mm]	0.1	0.2	0.3	0.6	0.9	1.5	1.5	2	4
Laser class	class 2 according to DIN EN 60825-1:2001-11, optional: enhanced laser power									
Light source	Laser, wave length 670 nm, red visible									
Sampling rate	54 kHz									
Distance output	4-20 mA; ±10 V (optional 0-20 mA, 0-10 V, 0-5 V, ±5 V)									
Interface	Ethernet									
Impedance	approx. 0 Ohm (10 mA max.)									
Measuring rate	10 kHz (-3 db)									
Temperature drift	0.02% of range / K									
Light intensity output	0-10 V									
MIN	+24 V / 10 mA when lower than MIN, LED yellow									
OK	+24 V / 10 mA when higher than MIN and lower than MAX, LED green									
MAX	+24 V / 10 mA when higher than MAX, LED orange									
Error output	+24 V / 10 mA, LED red									
Switching hysteresis	approx. 0.5% of range									
Ambient light	20,000 Lux									
Operation time	50,000 h for laser diode									
Isolation voltage	200 VDC, 0 V against casing									
Max. vibration	5 g up to 1 kHz									
Operation temperature	0° ... +50°C									
Storage temperature	-20° ... +70°C									
Humidity	up to 90% RH, non condensing									
Protection class	Sensor head: IP 64, electronic unit: IP 40									
Power supply	+24 VDC / 250 mA (10 ... 30 V)									

¹ measured from casing edge

² Measurement at 10 kHz, object colour matt white

³ Measurement at 20 Hz, object colour matt white

Scope of Delivery

- Sensor with sensor head cable 2m
- Electronic unit
- 25 pin SUB-D connector, solderable
- Calibration report

Options

please state for ordering

- Special length of sensor head cable
- Sensor head vibration resistant
- Interference filter
- Enhanced laser power

Accessories

- Protection housing
- Connection cable
- Protective glasses
- Power supply

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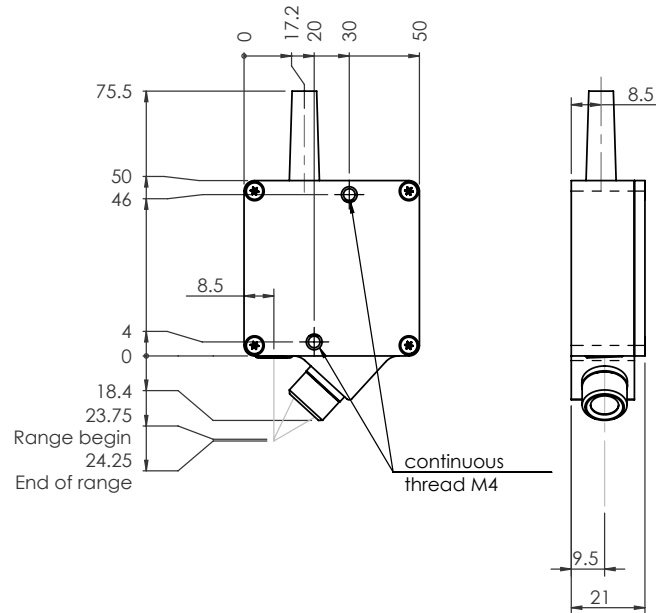
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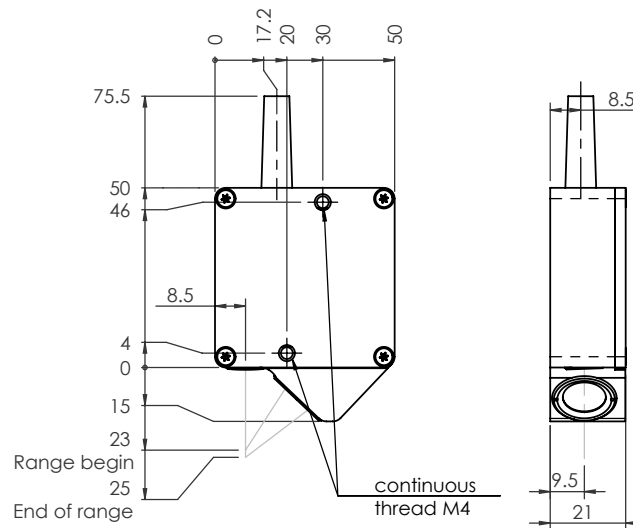
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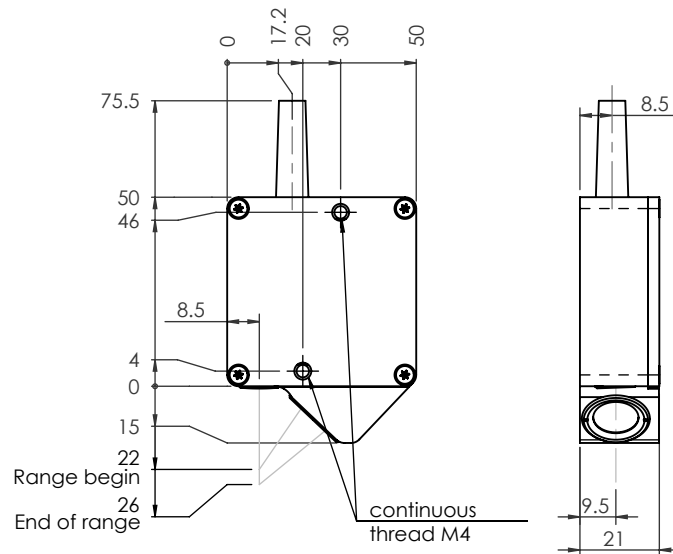
Sensor head M7LL/0.5



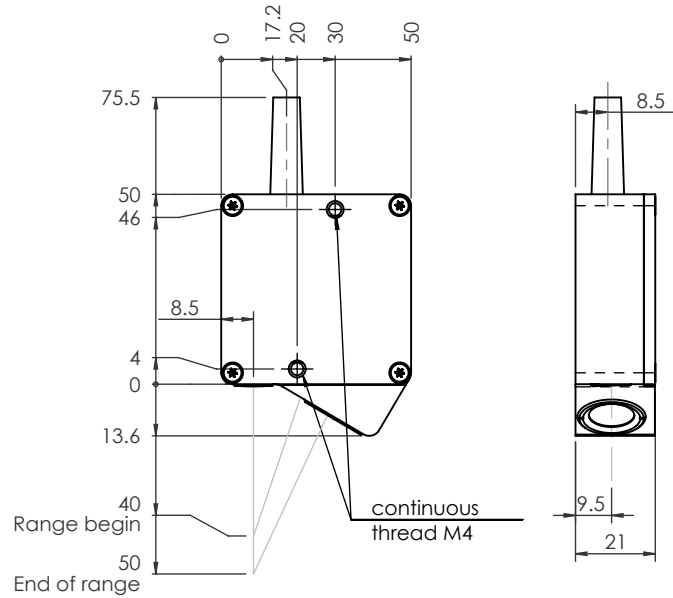
Sensor head M7LL/2



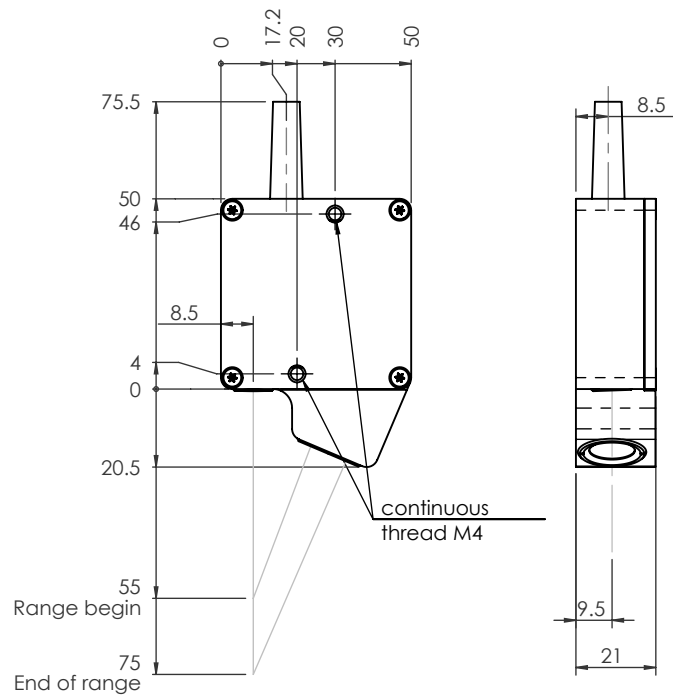
Sensor head M7LL/4



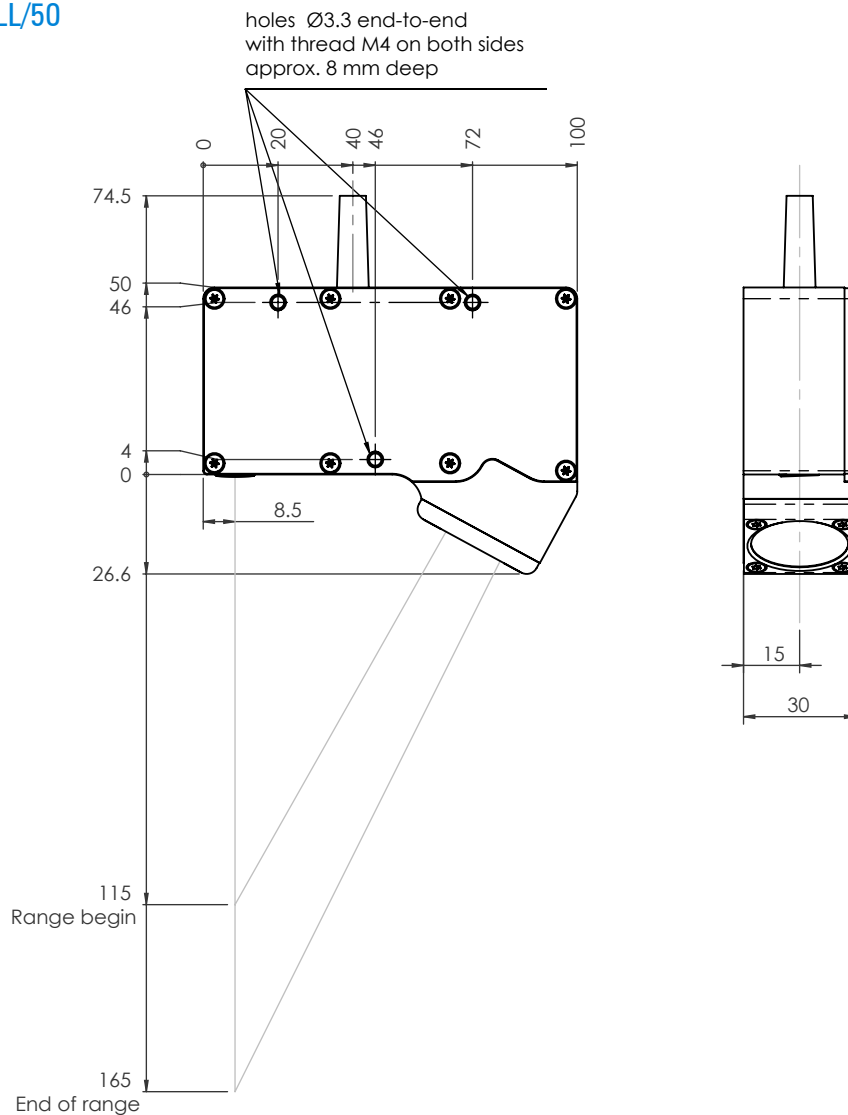
Sensor head M7LL/10



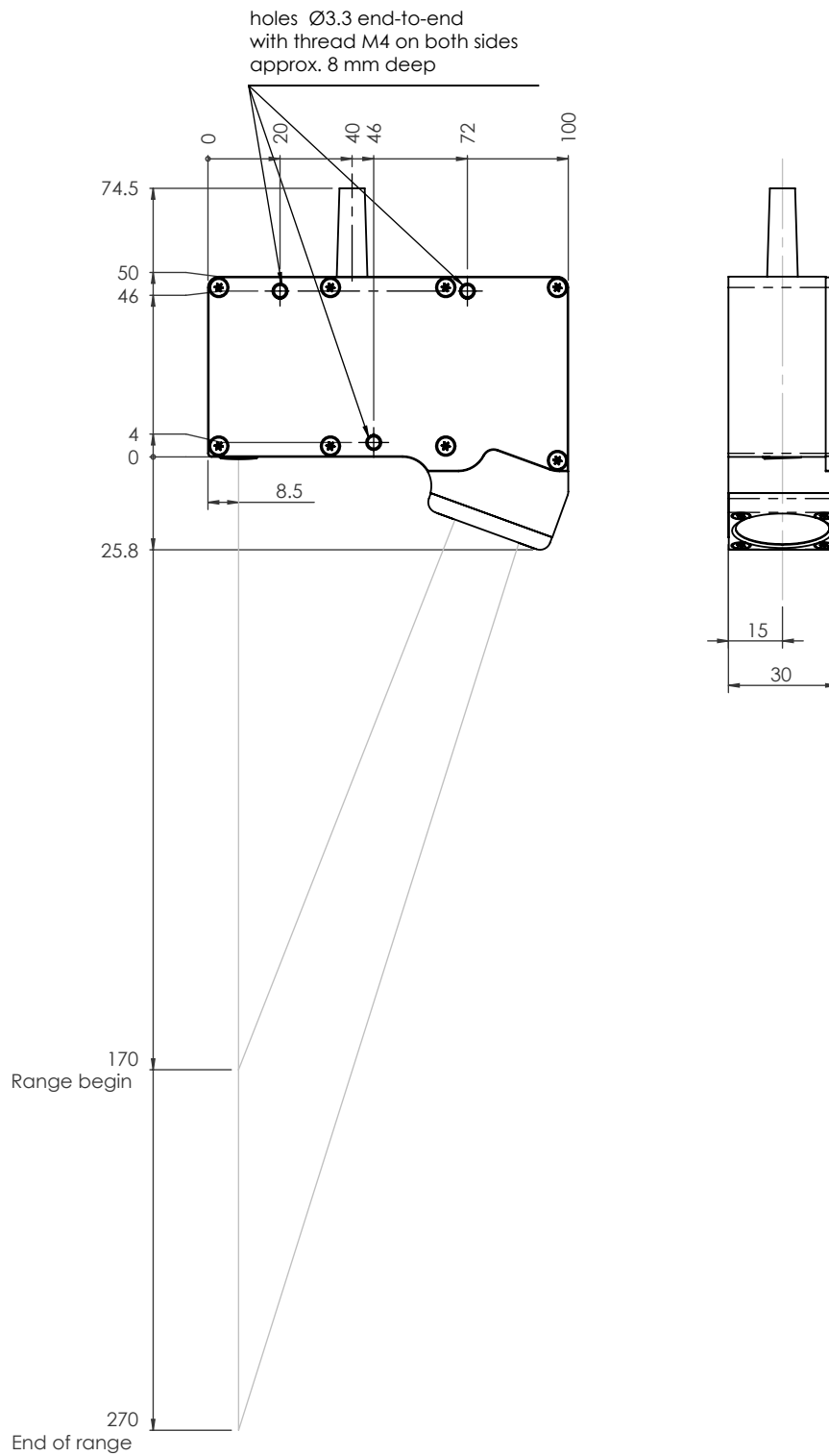
Sensor head M7LL/20



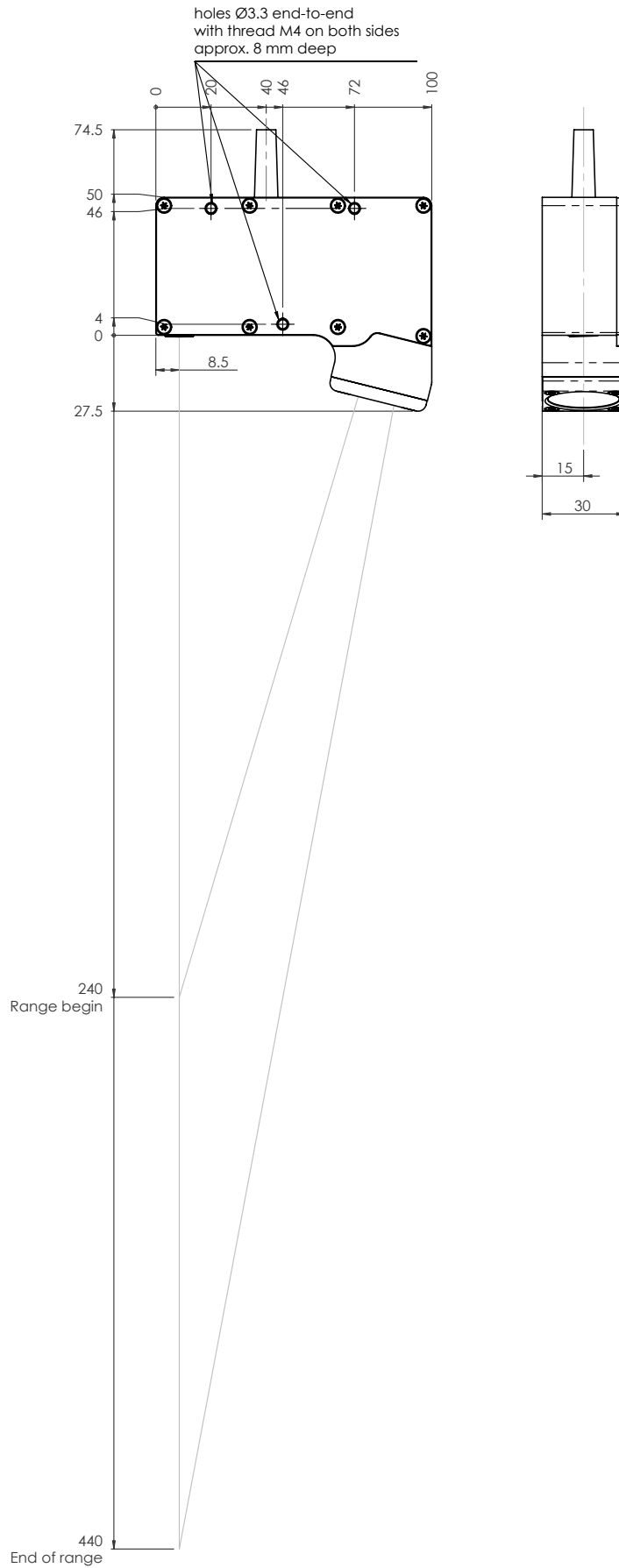
Sensor head M7LL/50



Sensor head M7LL/100



Sensor head M7LL/200



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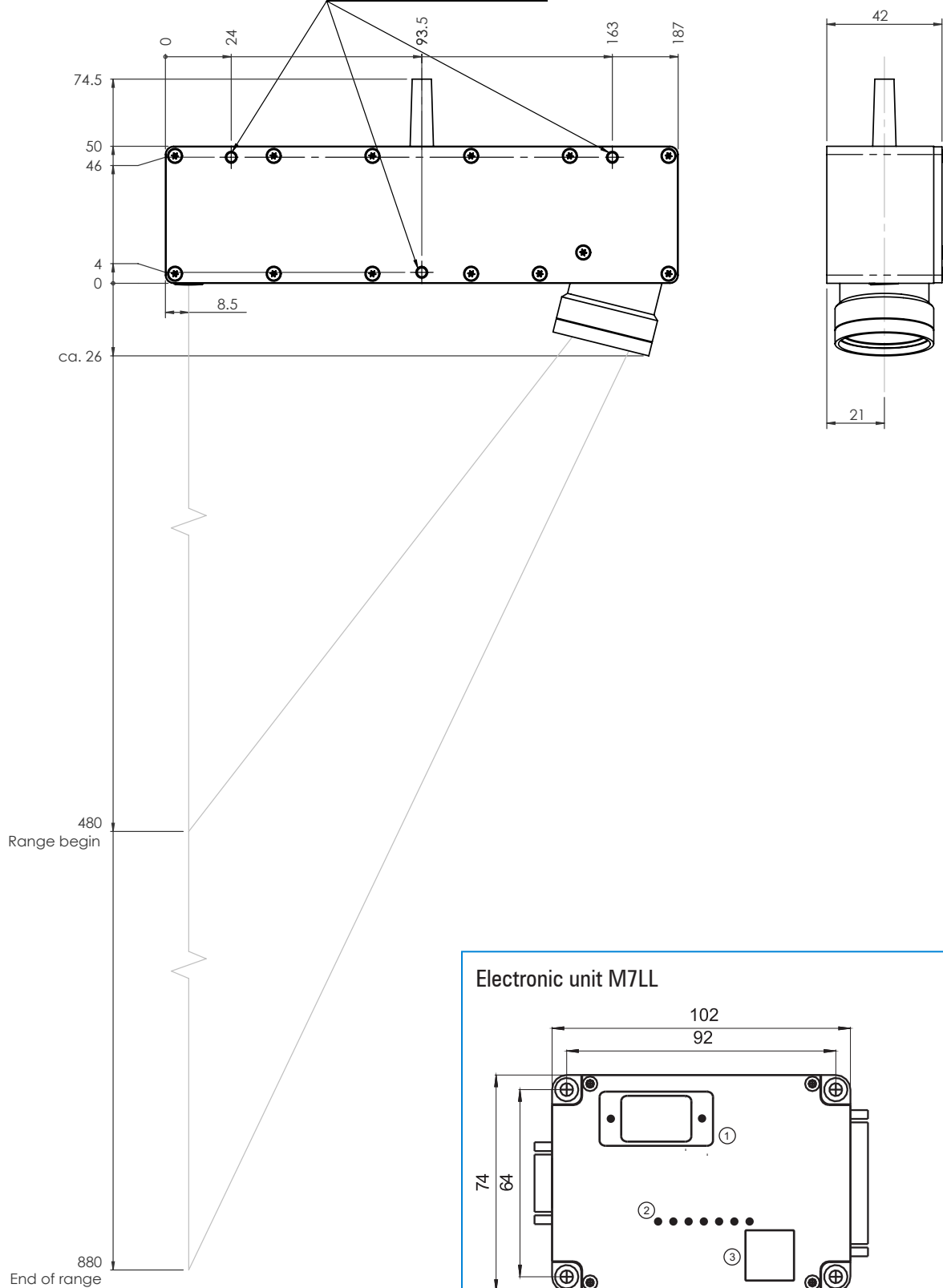
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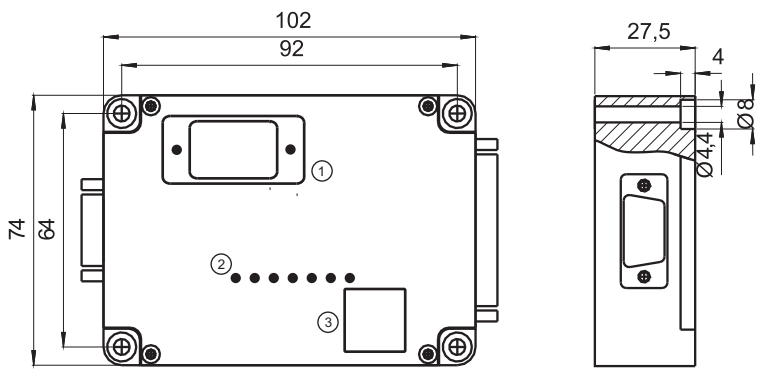
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Sensor head M7LL/400

holes $\varnothing 3.3$ end-to-end
with thread M4 on both sides
approx. 8 mm deep



Electronic unit M7LL



- 1 Abdeckung Dip-Schalter
- 2 Status-LEDs
- 3 LAN-Anschlussbuchse