

M7L

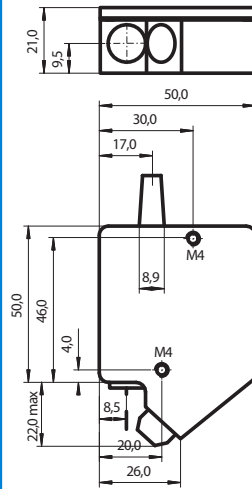
Laser Distance Sensor

for automated manufacturing

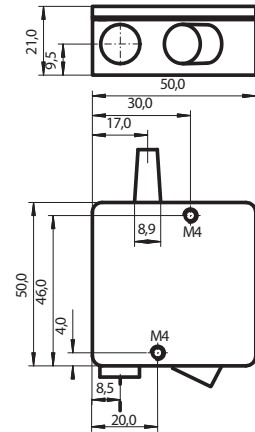


- Analog output / RS 232 interface
- Ranges 0,5 mm up to 400 mm
- Measuring frequency 10 kHz
- Reliable results also with white/black transition
- Compact design due to separate electronic unit

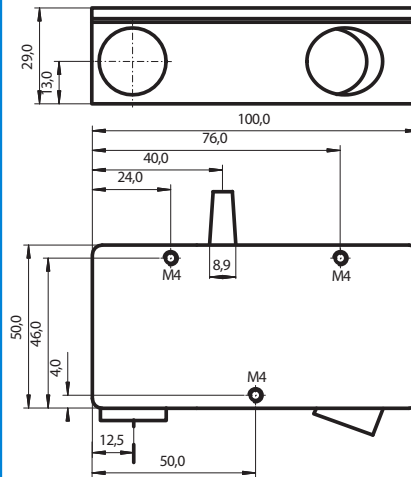
Type 1
weight 250 g, cable length 2m



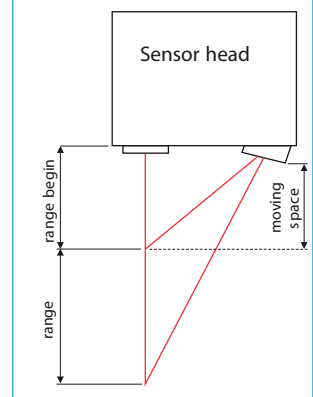
Type 2
weight 240 g, cable length 2m



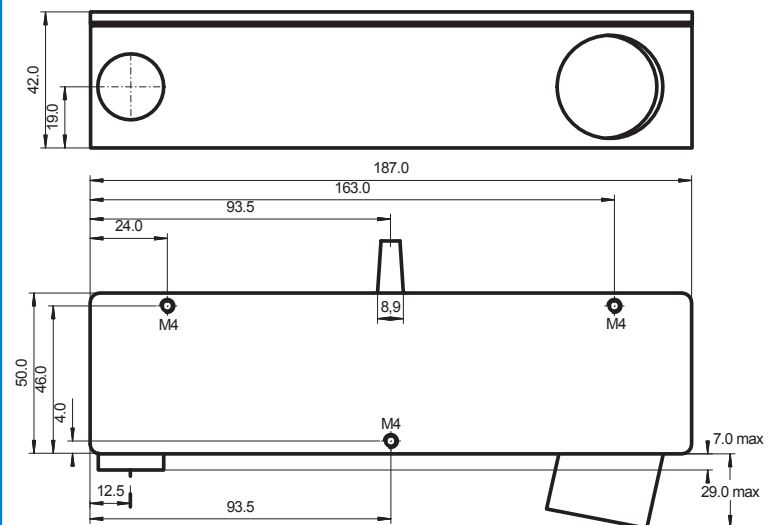
Type 3
weight 400 g, cable length 2m



Course of beam:



Type 4
weight 850 g, cable length 2m



Error and technical modification reserved

DB-M7L_3-06-E

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Specifications

Sensor M7L/		0.5	2	4	10	20	50	100	200	400
Casing type		1	2	2	2	2	3	3	3	4
Measuring range	[mm]	0.5	2	4	10	20	50	100	200	400
Range begin ¹	[mm]	23.8	23	22	40	55	95	170	240	480
Moving space ²	[mm]	1.8	14	13	31	46	81	156	226	451
Linearity ±	[µm]	1	4	8	20	40	100	200	400	700
Resolution ³	[µm]	0.2	0.4	1	5	9	30	60	200	600
Light spot diameter	[mm]	0.1	0.2	0.3	0.6	0.9	1.5	1.5	2	4
Laser protection class		Klasse 2 according to DIN EN 60825-1:2001-11								
Light source		Laser, wave length 670 nm, red visible								
Sampling rate		54 kHz								
Distance output	analog	4-20 mA / ±10 V / optional: 0-20 mA, 0-10 V, 0-5 V, ±5 V								
	digital	RS 232								
Impedance		approx. 0 Ohm (10 mA max.)								
Bandwidth		adjustable: 15 Hz ... 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								
Speichertemperatur		-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 (please see also fig. course of beam)

² Moving space between receiver optics and range begin (please see also fig. course of beam)

³ Measurement at 15 Hz, surface colour matt white

Scope of Delivery

- Sensor with sensor head cable 2m
- Electronic unit
- 25-pol. 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 casing
- Connection cable
- Protection glasses
- Power supply

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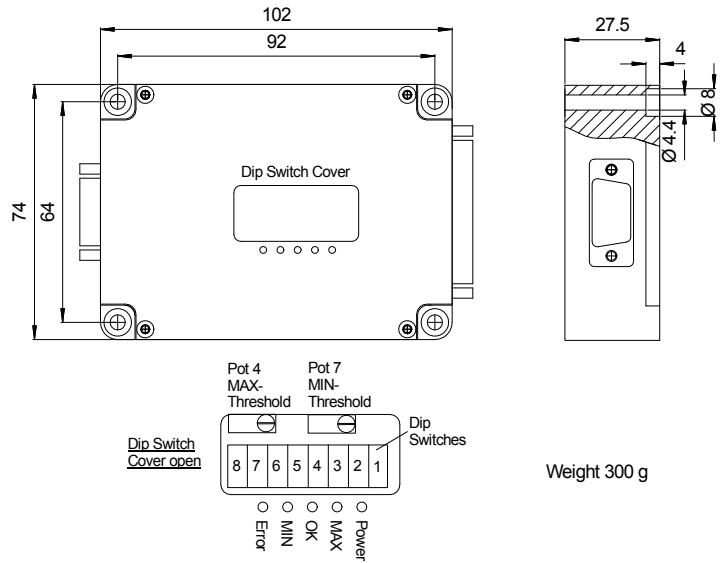
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Electronic Unit

Supply and evaluation unit



Weight 300 g

Pin Assignment (SKK 112, SKK 114, SKK 433):

25 pin SUB-D Pin	Function	Colour	
1	Distance output ± 10 V ¹	white	
2	Error +24 V / 10 mA	red	
3	Multifunction port, 0 V		
5	Range OK, +24 V / 10 mA	pink	
6	4 ... 20 mA	blue	
8	0 V supply	yellow	
14	Analog GND	brown	
16	MAX, +24 V / 10 mA	violet	
17	Input Sensor 2 (thickness measurement only)		
19	MIN, +24 V / 10 mA	black	
20	Light intensity 0 ... 10 V	grey	
21	+24 V supply	green	
Casing	EMV	shield	
	Serial interface / Function		9 pin SUB-D Pin
4	TXD	yellow	2
7	RXD	brown	3
8	GND	green	5
18	RTS	white	7 / 8
	Jumper		1 / 4 / 6

Dip Switch Settings:

SW1	Function			
on	RS 232 Software Trigger with RXD			
off	Stop with RTS			
SW2	SW3	Function		
on	on	RS 232 baud rate = 9.6 kBaud		
off	on	RS 232 baud rate = 19.2 kBaud		
on	off	RS 232 baud rate = 38.4 kBaud		
off	off	RS 232 baud rate = 115.2 kBaud		
SW4	SW5	SW6	F / kHz	T / ms
on	on	on	10	0.1
off	on	on	7	0.14
on ²	off	on	4	0.25
off	off	on	1	1
on	on	off	0.25	4
off	on	off	0.1	10
on	off	off	0.025	40
off	off	off	0.015	67
SW7	SW8	Multifunction Port (Pin 3)		
on ²	on	Laser off (I/O = GND)		
off	on	---		
on ³	off	Trigger output / Sensor = Master		
off ³	off	Trigger input / Sensor = Slave		

¹ Thickness measuring system: 0 - 10 V at Master

Cabling thickness measuring system:

Pin 3 (Master) to Pin 3 (Slave)
 Pin 17 (Master) to Pin 1 (Slave)

² Default setting

³ Thickness measurement only