Distance Sensor M11

- Measuring
- Controlling
- Monitoring

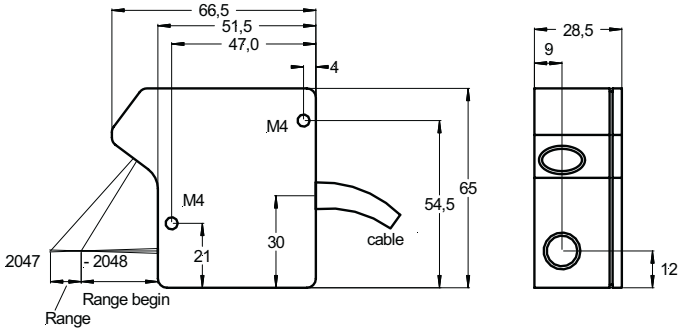
Laser Sensor up to 10 kHz
Range 10 ... 150 mm

Triangulation digital

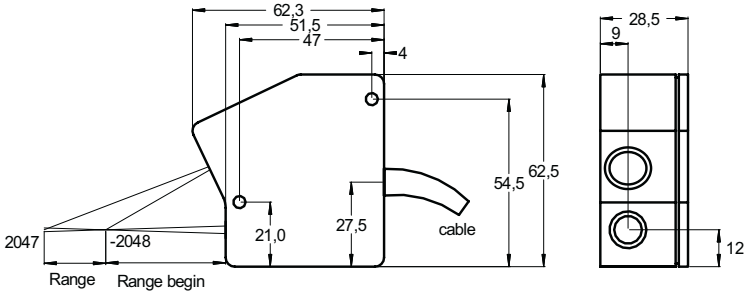
M11L/20

- digital distance sensor with high accuracy and resolution
- measurements on many different surfaces possible

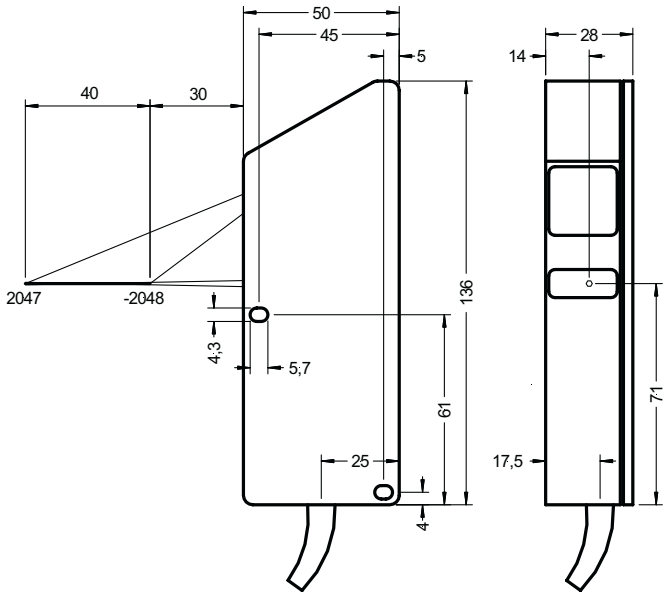
Sensor head M11L/10
Weight 280 g, cable length 2 m



Sensor head M11L/20
Weight 250 g, cable length 2 m



Sensor head M11L/40
Weight 410 g, cable length 2 m



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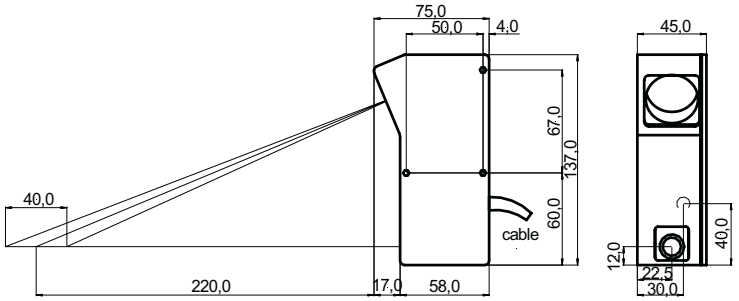
M11L/220-40

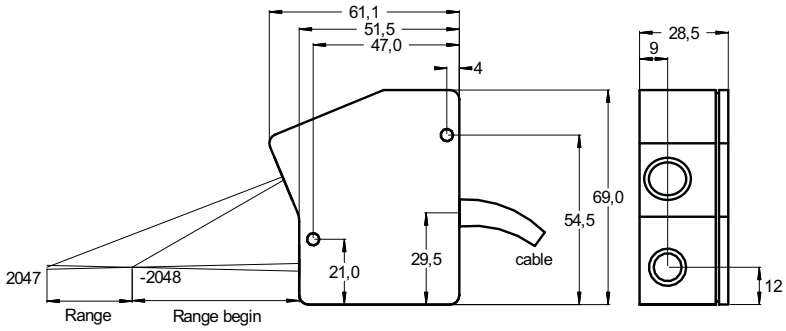
Sensor head M11L/220-40

Weight 600 g, cable length 2 m



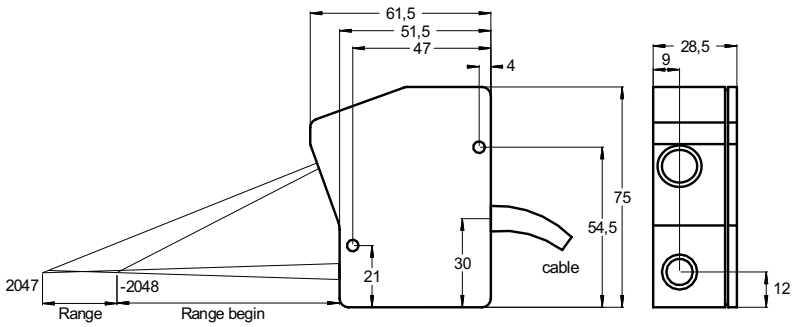
Sensor head M11L/50

Weight 260 g, cable length 2 m



Sensor head M11L/100

Weight 270 g, cable length 2 m



Laser Sensor M11

For highest accuracy

	Sensor	M11L/ 10	M11L/ 20	M11L/ 40	M11L/ 220-40	M11L/ 50	M11L/ 100	M11L/ 150***
	Range [mm]	10	20	40	40	50	100	150
	Range begin [mm]	25	40	30	200	55	75	1350
	Linearity* ± [mm]	0,005	0,01	0,02	0,02	0,025	0,05	0,15
	Resolution* [mm]	0,0025	0,005	0,01	0,01	0,0125	0,025	0,04
	Light spot diameter [mm]	0,8	0,9	0,4	0,3	1	1,1	2
	Laser protection class	2	2	2	3R	2	2	3R
	Light source	Laser, 670 nm, red visible						
	Sampling frequency**	500 Hz up to 10 kHz						1 kHz
Analog outputs	Distance output	±10 V (optional 0 ... 10 V / 0 ... 5 V) RS 232 / 4 ... 20 mA (optional 0 ... 20 mA)						
	Impedance	approx. 0 Ohm (10 mA max.)						
	Angle error	with 30° of inclination (A-axis): approx. 0,5% on white surface						
	Reaction time	200 µs						
	Bandwidth	0,5 x sampling frequency						
	Temperature drift	0,01% of range / K						
	Intensity output	0 ... 10 V						
Switching outputs	MIN	+24 V, RB[1)]< object < RB + 10% R[2)], LED yellow						
	OK	+24 V, RB + 10% R < object < RE[3)]- 10% R, LED green						
	MAX	+24 V, RE - 10% R < object < RE, LED orange						
	Error output	+24 V / 10 mA, LED red						
	Ambient light	20.000 Lux on measured object						
	Operation time	50.000 h for Laser diode						
	Isolation voltage	200 VDC, 0 V against case						
	max. Vibration	5 g up to 1 kHz						
	Operation temperature	0° ... +40°C						
	Storage temperature	-20° ... +70°C						
	Humidity	up to 90% RH						
	Protection class	IP 64						
	Supply	+24 VDC / 280 mA (10 ... 28 V)						

* Measurement on object color white

** Automatic adjustment of sampling frequency depending on object's light intensity

*** Technical drawing on request

1) RB:Range begin 2) R: Range 3) RE: Range end

Delivery:

- Sensor with connection cable 2m
- Electronic unit
- 25 pin Sub-D connector for output soldering version
- Calibration report

Options:

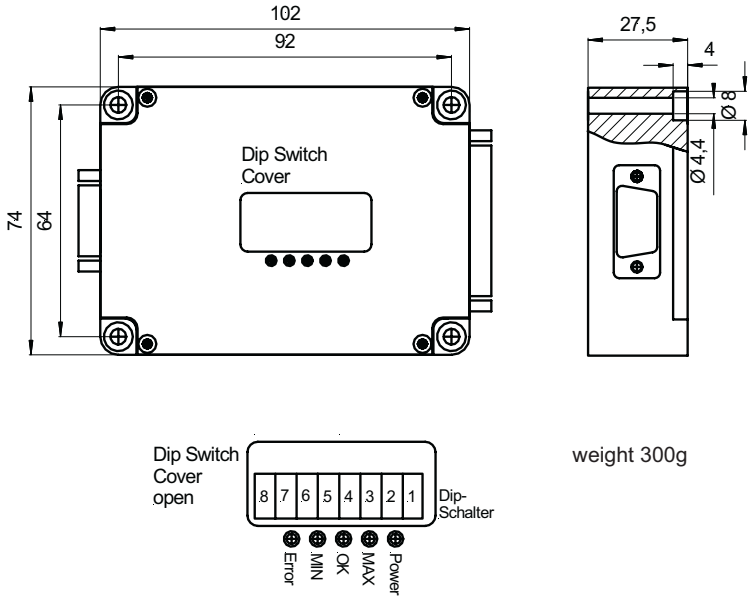
- Special cable length
- Interference filter
- Sensor head with integrated protection window
- Sensor head vibration resistant

Accessories:

- Thickness measuring system
- Increased laser capacity
- Supply output cable for RS 232
- Extension cable 2m
- Industrial power supply
- Power supply for wall socket
- Digital display (display in mm)
- More accessories on request

- Special type M11LS for high mirroring surfaces on request

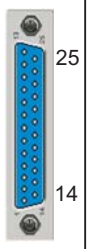
Electronic unit M11



weight 300g

Pin assignment:

25 pin SUB-D	Function	Colour	
1	Distance output ±10 V **	white	
2	Error +24 V / 10 mA	red	
3	Laser OFF, 0V		
5	Range OK, +24V / 10mA	pink	
6	4 ... 20 mA	blue	
8	0V supply	yellow	
14	analog GND	brown	
16	MAX, +24 V / 10mA	violet	
17	Input sensor 2		
19	MIN, +24 V / 10mA	black	
20	Intensity 0 ... 10 V	grey	
21	+24 V supply	green	
casing	EMC	shield	
			9-pol. SUB-D
4	TXD	yellow	2
7	RXD	brown	3
8	GND	green	5
18	RTS	white	7 / 8
	Jumper		1 / 4 / 6



** Thickness measuring system: 0 - 10 V at master

Dip switch settings:

SW1	SW2	SW3	adjustment of sampling frequency f / velocity
off	off	off	Laser off
off	off	on	adjustment off (f = 1 kHz)
off	on	off	adjustment off (f = 5 kHz)
off	on	on	adjustment off (f = 10 kHz)
on	off	off	100% max. velocity
on	off	on	70% max. velocity
on	on	off	60% max. velocity
on	**on**	**on**	**40% max. velocity**

SW4	SW5	Filter
off	**off**	**Integration off**
off	on	Integration of 2 measurements
on	off	Integration of 8 measurements
on	on	Integration of 128 measurements

SW6	SW7	plausibility test (deviation of last measured value)
off	**off**	**plausibility test off**
off	on	plausibility test 1 (±1% of range)
on	off	plausibility test 2 (±5% of range)
on	on	plausibility test 3 (±10% of range)

SW8	
off	default setting (do not change!)

bold: default setting

RS 232-protocol (115 320 Baud):

Data bits	7	6	5	4	3	2	1	0
Lowbyte	off	DB6	DB5	DB4	DB3	DB2	DB1	DB0
Highbyte	on	DB11	DB10	DB9	DB8	DB7	F2	F1

DB 0 - 11 = signed data bits; DB0 = LSB; DB11 = MSB

F2	F1	Status
off	off	OK
off	on	MIN
on	off	MAX
on	on	Fehler