

Distance Sensor M11

Laser Sensor up to 10 kHz
Range 20 ... 100 mm

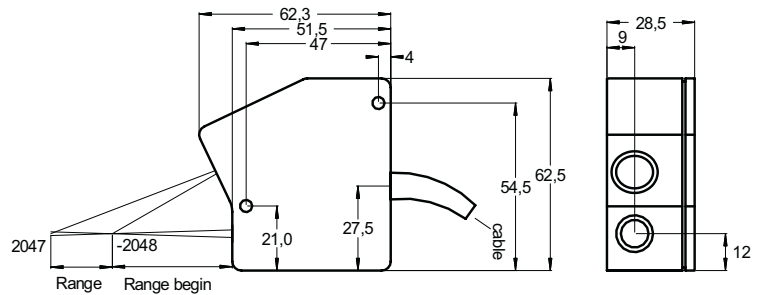
Triangulation digital



- Measuring
- Controlling
- Monitoring

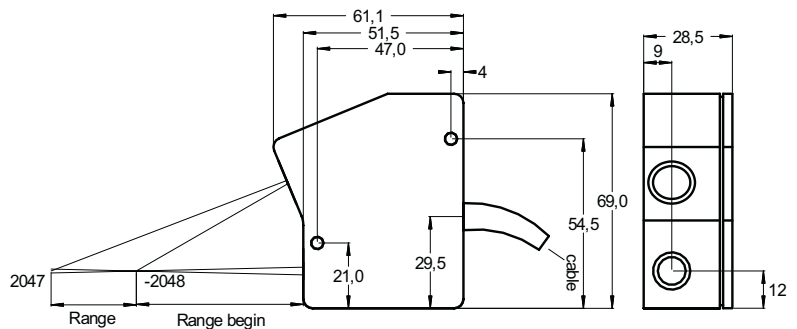
Sensor head M11L/20

Weight 250 g, cable length 2 m



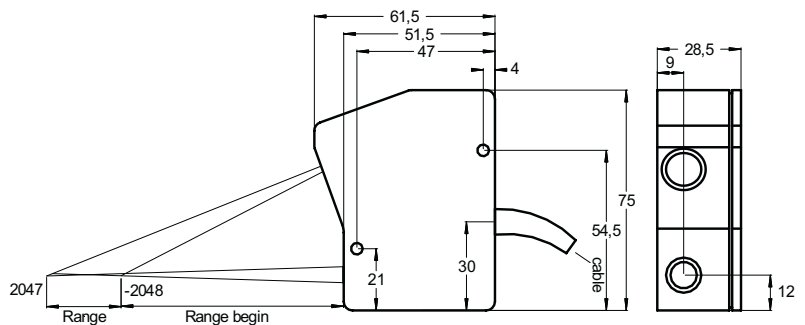
Sensor head M11L/50

Weight 260 g, cable length 2 m



Sensor head M11L/100

Weight 270 g, cable length 2 m



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

Laser Sensor M11

Sensor	M11L/ 20	M11L/ 50	M11L/ 100	M11L/ 150
Range [mm]	20	50	100	150
Range begin [mm]	40	55	75	1350
Linearity* ± [mm]	0,01	0,025	0,05	0,15
Resolution* [mm]	0,005	0,0125	0,025	0,04
Light spot diameter [mm]	0,9	1	1,1	2
Laser protection class	2	2	2	3R

Light source	Laser, 670 nm, red visible
Sampling frequency	500 Hz bis 10 kHz
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
Bandwith	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

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

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

Delivery:

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

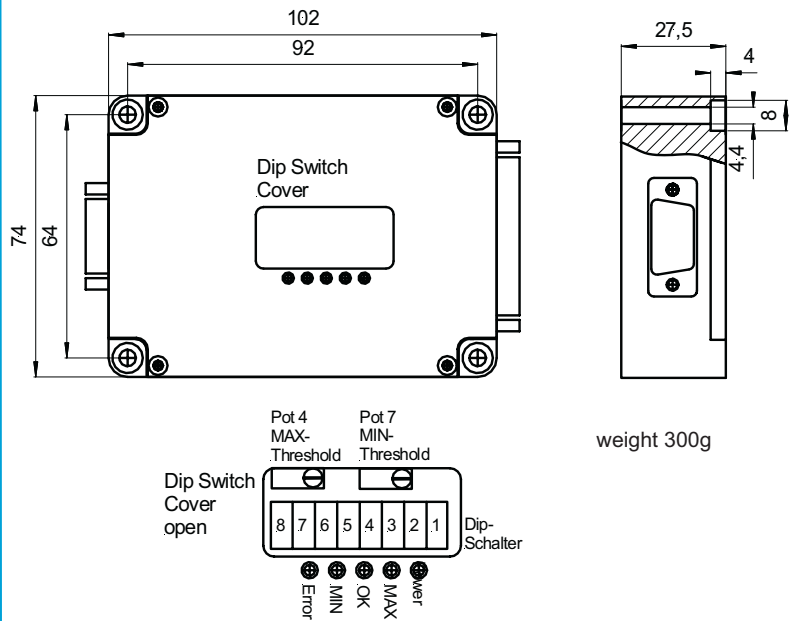
Options:

- 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

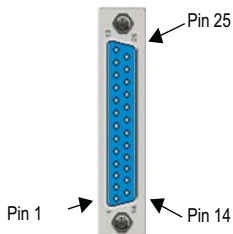
Electronic unit M11



weight 300g

Pin assignment 25 pin SUB-D connector:

Pin	
1	Distance output ± 10 V
2	Error +24 V / 10 mA
3	Laser OFF, 0V
4	TXD
5	Range OK, +24 V / 10 mA
6	4 ... 20 mA
7	RXD
8	0V supply
14	Analog GND
16	MAX, +24 V / 10 mA
17	Input Sensor 2
18	RTS
19	MIN, +24 V / 10 mA
20	Intensity 0 ... 10 V
21	+24 V supply



Dip switch settings:

SW1	SW2	SW3	adjustment intensity in % of saturation (sampling frequency)
off	off	off	Laser off / adjustment off
off	off	on	adjustment off (sampling frequency 1 kHz)
off	on	off	adjustment off (sampling frequency 5 kHz)
off	on	on	adjustment off (sampling frequency 10 kHz)
on	off	off	20%
on	off	on	30%
on	on	off	40%
on	on	on	60%

SW4	SW5	Filter
off	off	Integration off
off	on	Integration of 2 measurements
on	off	Integration of 4 measurements
on	on	Integration of 8 measurements

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

SW8	
off	control by dip switches *)
on	control by PC (RS 232)

*) default setting (do not change!)

RS 232-protocol (115,2 kBaud):

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