

Distance Sensor M5

- Measuring
- Controlling
- Monitoring

LED, 500 values / s

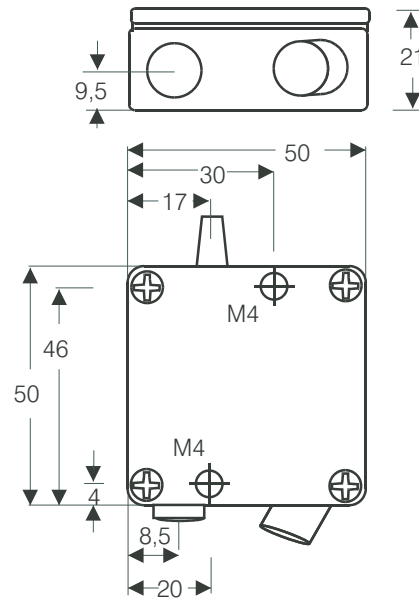
Operation temperature up to 70°C

Triangulation analog



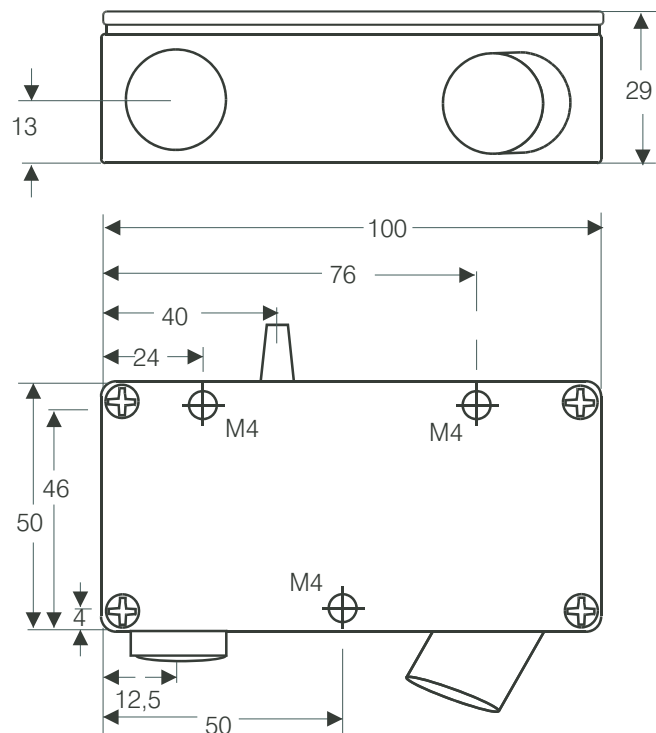
Sensor head Type /2 /4 /10 /20

Weight 240 g , cable length 2 m



Sensor head Type /100 /200

Weight 400 g, cable length 2 m



- LED Sensor with big, invisible light spot
- constant measuring values
- qualified for textiles, felt, etc. with constant colors

LED Sensor M5

Big invisible light spot für constant measurement results

Sensor	M5/2	M5/4	M5/10	M5/20	M5/100	M5/200
Range [mm]	2	4	10	20	100	200
Range begin [mm]	23	22	40	55	170	240
Linearity* ± [mm]	0,004	0,008	0,02	0,04	0,2	0,4
Resolution* [mm]	0,0005	0,001	0,003	0,006	0,03	0,06
Light spot diameter [mm]	0,8	0,8	2	3	8	10

	Light source	LED, infrared 890 nm - invisible
	Sampling frequency	2,5 kHz
Analog outputs	Distance output	±10 V; optional: ±5 V / 0 ... 10 V / 4 ... 20 mA / RS 232 / RS 485
	Impedance	approx. 0 Ohm (10 mA max.)
	Angle error	with 30° of inclination (A-axis): approx. 0,5% on white surface
	Reaction time	1 ms, 2 ms or 20 ms adjustable
	Bandwith	500 Hz, 200 Hz or 20 Hz (-3 dB)
	Temperature drift	0,02% of range / K
		Intensity
Switching outputs	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
	Option	Relay output 0,5 A / 100 V for "MIN", "OK" and "MAX"
	Switching hysteresis	approx. 0,5% of range
Error outputs	not enough light	+24 V / 10 mA when not enough light, LED yellow
	too much light	+24 V / 10 mA when too much light, mirroring surface, LED red
	Ambient light	20.000 Lux
	Operation time	50.000 h for LED
	Isolation voltage	200 VDC, 0V against case
	max. Vibration	5 g up to 1 kHz (sensor head, 20 g optional)
	Operation temperature	0° ... +70°C
	Storage temperature	-20° ... +70°C
	Humidity	bis 90% RH
	Protection class	Sensor: IP 64, Electronic system: IP 40
	Supply	+24 VDC / 200 mA (10 ... 30 V)

* Measurement on object color white - Bandwith 500 Hz

Delivery:

- Sensor with connection cable 2m
- Electronic unit
- 25 pin D-connector for soldered joint
- Calibration report

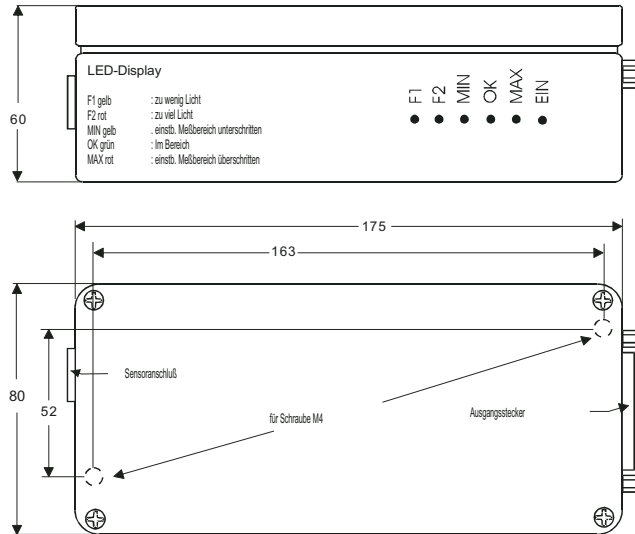
Options:

- Special cable length
- Cable output on the right side
- Sensor head with integrated protection window
- Sensor head vibration resistant
- Synchronisation of 2 sensors

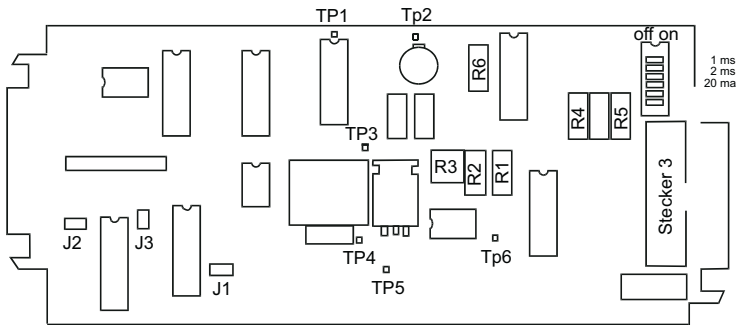
Accessories:

- Protection casing
- RS 232-Interface
- RS 485-Interface
- Extension cable 2m/3m
- Power supply
- Plug-on power supply
- Digital display (display in mm)
- More accessories on request

Electronic-unit M5



Adjustments for M5



R1: MIN
TP,TP2: GND
R2: MAX
TP3: intensity
R3: low light
TP4: +15V
R4: zero
TP5: -15V
R5: Gain
TP6: not enough light
R6: Thickness

Dip switch settings:

Integration time	1 ms		2 ms		20 ms	
	500 Hz		200 Hz		20 Hz	
Frequency	500 Hz		200 Hz		20 Hz	
Switch settings	OFF	ON	OFF	ON	OFF	ON
1	X		X			X
2	X		X			X
3	X			X	X	
4	X			X	X	

default setting 500 Hz

Adjustable thresholds

The electronic system has 2 adjustable thresholds for Minimum- and Maximum-Limits. the Thresholds can be varied over the whole range, independent from the analog output.

A small hysteresis avoids flickering when the signal is close to the threshold.

When the signal is lower than MIN, the MIN output is active, when the signal is higher than MAX, the MAX output is active. Between these thresholds, the output is OK, when the object is in the sensor's range.

Thresholds are set by default to begin range and end range:

MAX: R1 = +10 V
MIN: R2 = -10 V

Pin assignment:

Pin	
1	Distance output ±10 V
2	not enough light, +24 V
5	Range OK, +24 V
8	OV supply
9	Slave Takt ON
10	Master Synchron OFF
14	Analog GND
15	too much light, +24 V
16	MAX, +24 V
19	MIN, +24 V
20	Intensity 0 ... 10 V
21	+24 V supply
22	Master Takt OFF
23	Slave ON