

# Distance Sensor M5

- Measuring
- Controlling
- Monitoring

LED, 500 values / s

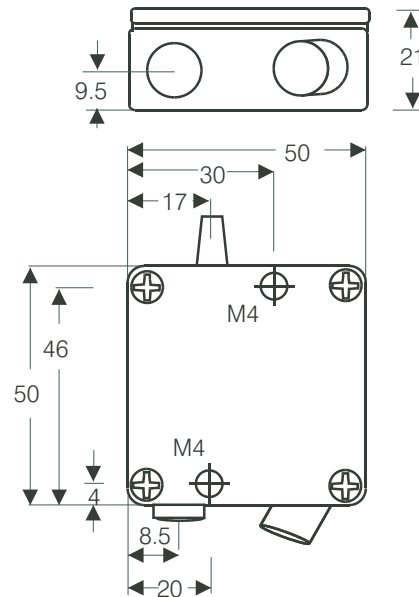
Operation temperature up to 70°C

Triangulation analog



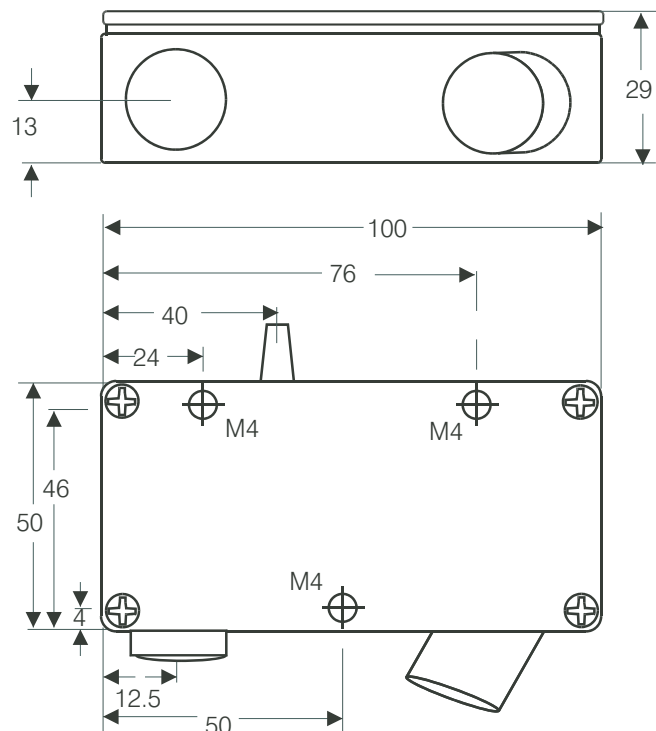
## Type 2

Weight 240 g , cable length 2 m



## Type 3

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
Casing type	2	2	2	2	3	3
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	
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	
Bandwidth	500 Hz, 200 Hz or 20 Hz (-3 dB)	
Temperature drift	0.02% of range / K	
Intensity	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	
Option	Relay output 0.5 A / 100 V for "MIN", "OK" and "MAX"	
Switching hysteresis	approx. 0.5% of range	
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 (21 ... 28 V)	

\* Measurement on object color white - Bandwidth 200 Hz

## Delivery:

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

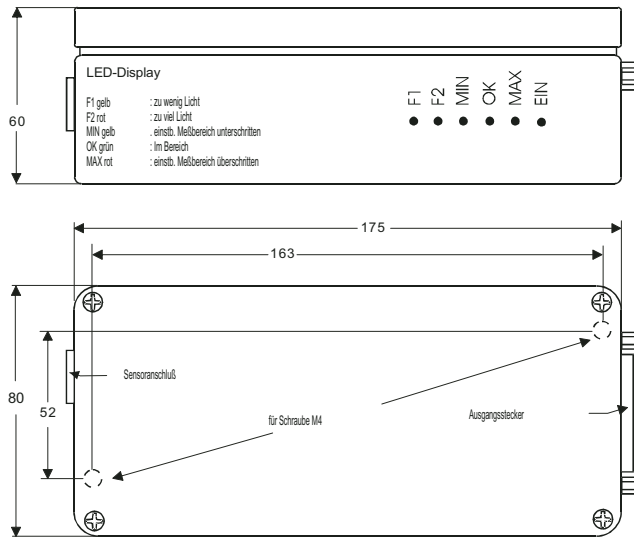
## Options:

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

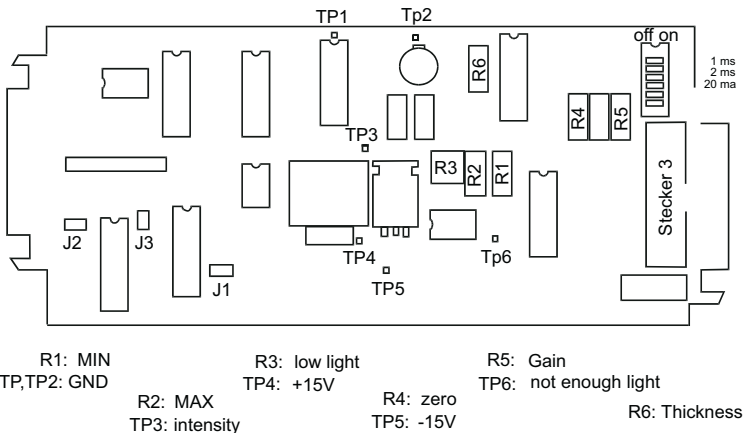
## Accessories:

- 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



### Dip switch settings:

Integration time	1 ms		2 ms		20 ms	
	OFF	ON	OFF	ON	OFF	ON
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