



# 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 (10 ... 30 V)

\* Measurement on object color white - Bandwidth 500 Hz

## Delivery:

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

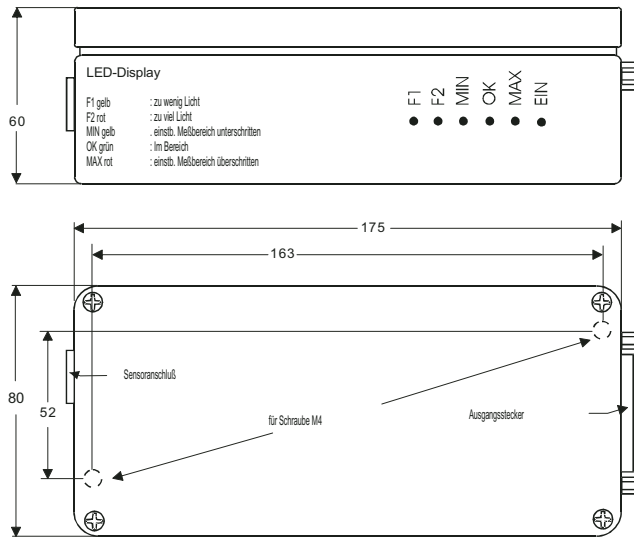
## Options:

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

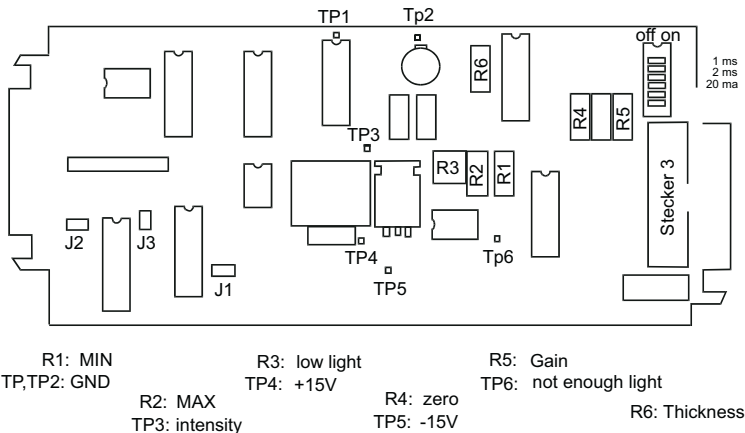
## Accessories:

- 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



### 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						
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