

Distance Sensor M5

- Measuring
- Controlling
- Monitoring

LED, 500 values / s

Operation temperature up to 70°C

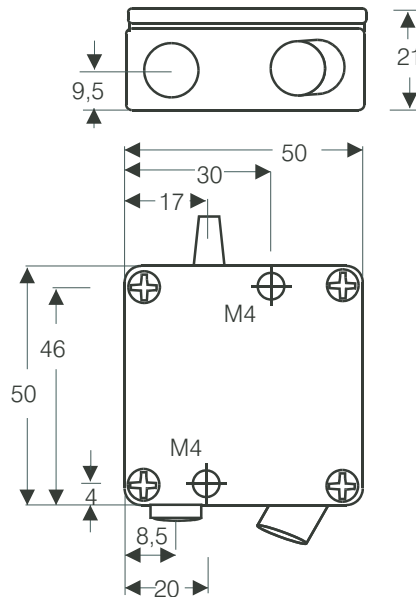
Triangulation analog



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

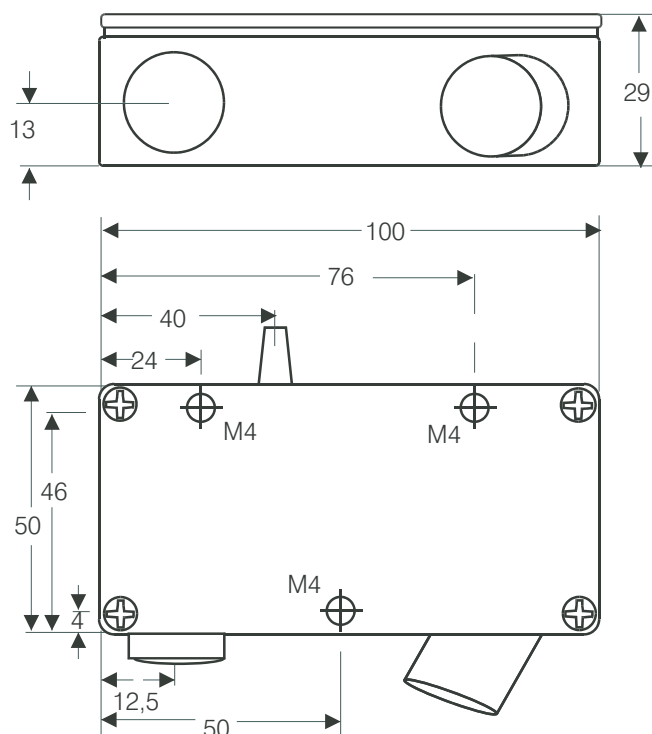
Type 2

Weight 240 g , cable length 2 m



Type 3

Weight 400 g , cable length 2 m



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 |
| 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 |
| | Bandwidth | 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 - Bandwidth 500 Hz

Delivery:

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

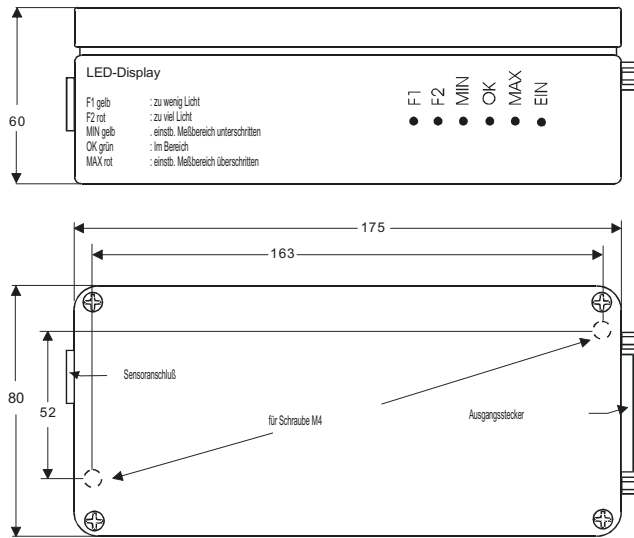
Options:

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

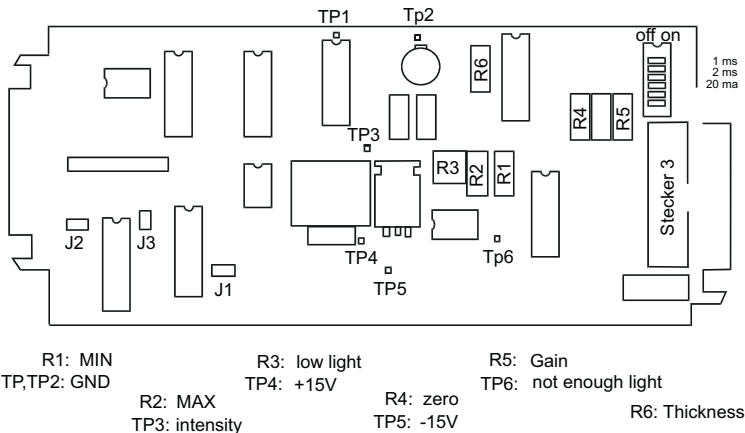
Accessories:

- 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



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

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

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 |