

Distance Sensor M10

- Measuring
- Controlling
- Monitoring

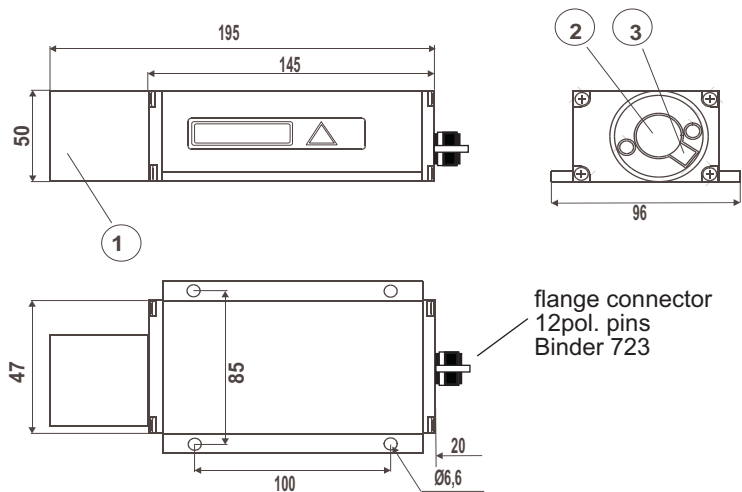
Measurement up to 30 m,
with reflector up to 100m

Comparative phase measurement



Distance sensor for distance from 0.2 to more than 100 Meter. The sensor measures on all natural surfaces, except glass and water. Measurement of distance below 30 Meter needs no reflector. Laser beam divergence and Laser spot is small. This allows measurement in small tubes.

For protection of the optical system, touch, mechanical hazards, a protective cover is mounted at the front of the unit.



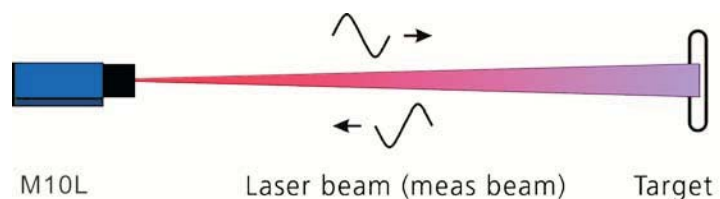
weight 850 g

- 1 protective cover
- 2 receiver optic
- 3 sender optic

- surveillance of cranes and elevators
- measurement of loose parts
- security applications
- object recognition detection of presence control from a big distance

Measurement Principle

The M10 uses phase comparison method. The M10 sends out modulated visible laser light in different frequencies. The diffuse reflected light from the target is compared to the internal reference signal. A microprocessor calculates the distance from the phase shift to the reference. Accuracy is ± 2 mm and resolution 0.1 mm within a range of 1 m.



Laser Sensor M10

ranges programmable, e. g. range 0,5m, range begin 9,5 m

| Sensor | M10L/100 - 10 Hz | M10L/100 - 50 Hz |
|---------------------|---|------------------|
| Range | 100 m, reflection foil is necessary for range > 30 m | |
| Range begin | 0,2 m | |
| Linearity* | ± 2 mm for range < 30 m, ± 3 mm for range > 30 m | |
| Resolution** | 1 mm | |
| Light spot diameter | < 6 mm with 10 m, < 30 mm with 50 m, < 60 mm with 100 m | |
| Measuring frequency | 1 ... 10 Hz | 50 Hz |

| | |
|------------------------|---|
| Light source | Laser, 650 nm, red visible |
| Laser protection class | 2 |
| Distance output | 4 ... 20 mA, RS 232, optional: RS 422; 2 ... 10 V |
| Analog outputs | programmable thresholds |
| Load resistor | 500 Ohm |
| Temperature drift | 0,005% of range / K |
| Switching output | MAX 0,5 A programmable |
| Trigger input | 3 ... 24 V, delay time 5 ms, adjustable up to 10s |
| Operation temperature | -10° ... +50°C |
| Storage temperature | -20° ... +70°C |
| Humidity | bis 90% RH |
| Protection class | IP 65 |
| Supply | 10 ... 30 V / 150 mA |

* typical measuring accuracy under average conditions within specified measuring range

**within the treshold of 1 m = 0,1 mm, outputs only with 4...20 mA oder 2...10V

Delivery:

- Sensor without connection cable
- Demo-Software
- Manual

Options:

- Interface 422
- Distance output 2...10 V

Accessories:

- connection cable 2m, 5 m or 10 m
- connection box

Connection cable (accessories):

| color | M10L/100 - RS 232 | M10L/100 - RS 422 |
|--------|--------------------------------|--------------------------------|
| green | TxD RS 232-data transmission | RX+ RS 422-received data + |
| yellow | RxD RS 232-received data | RX- RS 422-received data - |
| brown | TRIG external trigger input | TRIG external trigger input |
| red | lout analog output | lout analog output |
| black | n.c. | TX- RS 422-data transm. - |
| violet | n.c. | TX+ RS 422-data transm.+ |
| orange | U _V supply | U _V supply |
| white | ALARM digital switching output | ALARM digital switching output |
| grey | GND Ground | GND Ground |
| blue | GND Ground | GND Ground |

Connection cable with connection box (accessories):

