

PT700520

sensor laser, diffuse-reflection sensor

- robust plastic housing
- laser class 2
- 2 switching outputs pnp/npn
- analog output 1-10V
- outputs adjustable via teach button
- connection with 5-pin M12-connector



technical data

optical data, error limits, timing

measuring range ¹⁾	150 ... 2300mm
light source	laser, pulsed, 635nm, laser class 2
light spot	divergent, 3x8mm at 2300mm
resolution ²⁾	1 ... 5mm
absolute measurement accuracy ¹⁾	± 3%
repeatability ³⁾	± 2%
b/w detection tresh (6%-90% Rem.)	≤ 1%
temperature drift	≤ 0.1% / °C
measurement time	≤ 7ms
response time	≤ 20ms
delay before start-up	≤ 300ms

1) luminosity coefficient 6% ... 90%, at 20°C, measurement object ≥ 50x50mm²

2) minimum and maximum value depend on measurement distance and configuration of the analog output

3) same object, identical environmental conditions, measurement object ≥ 50x50mm²

electrical data

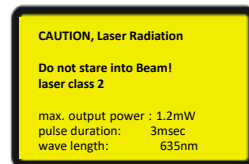
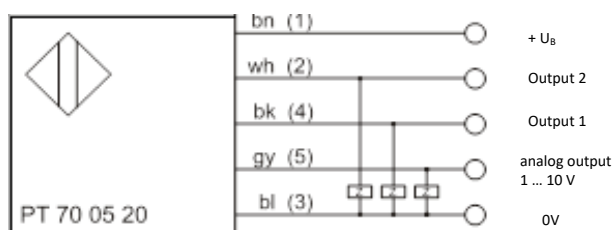
operating voltage U _B	18 ... 30V DC, (incl. residual ripple)
residual ripple	≤ 15% of U _B
open-circuit current	≤ 150mA
switching output/function	2xpush-pull switching outputs PNP, no / NPN, nc
protective circuit	reverse polarity and short-circuit protected
analog output	1 ... 10V
signal voltage high	≥ (U _B - 2V)
signal voltage low	≤ 2V
analog output	R _L ≥ 2kΩ

mechanical data, environmental data

housing	plastic
optics cover	plastic
weight	140g
connection type	M12 connector, 5-pin
ambient temp. operation	-20 ... +40°C
ambient temp. storage	-30 ... +70°C
VDE safety class ¹⁾	II, all-insulated
protection class	IP 67 (acc. to EN 60529)
standards applied	IEC 60947-5-2

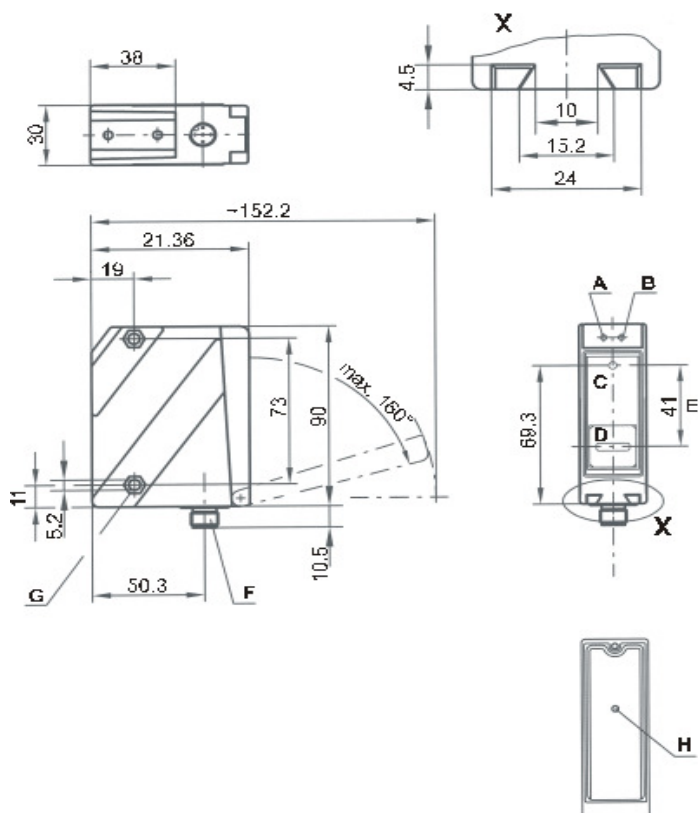
1) Rating voltage 250V AC

electrical connection



dimensional drawing

- A green indicator diode
- B yellow indicator diode
- C transmitter
- D receiver
- E optical axis
- F device plug M12 x 1
- G countersinking for SK nut M5 / 4.2 deep
- H teach button



We recommend e. g. the cable socket: VK 20 56 21

Teach-in with teach button

1. Position measurement object at the desired measurement distance.
2. The respective teach function is activated by operating the teach button (H) for different amounts of time. The activated teach function is signaled by a flashing of the LEDs.

teach function	duration of teach button operation	green LED	yellow LED
switching output Q1	2 ... 4 sec	flash synchronously	
switching output Q2	4 ... 6 sec	flash synchronously	
1 V analog output	6 ... 8 sec	on	flashes
10 V analog output	8 ... 10 sec	flashes	on

3. Release teach button and wait for optical confirmation by end of flashing signal (green LED on).
4. Continuously flashing LEDs signal an unsuccessful teach event (sensor not ready). To restart the teach event and restore the old values please disconnect the sensor from voltage and repeat the teach event.

Reset of the analog output to factory settings *Reset*

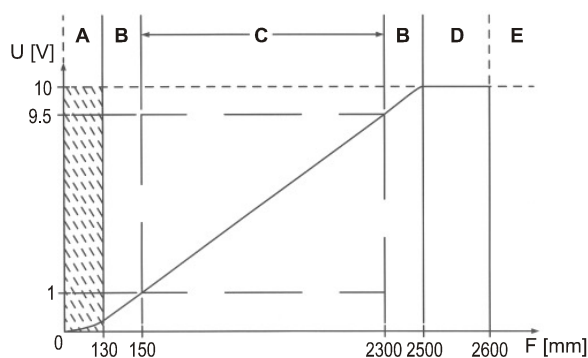
1V analog output at 150mm:

1. Position measurement object just below start of measurement range (150mm).
2. Press teach button for 6 ... 8sec (green LED on, yellow LED flashes).
3. Release teach button and wait for optical confirmation by end of flashing signal (green LED on).

Reset 10V analog output at 2300mm:

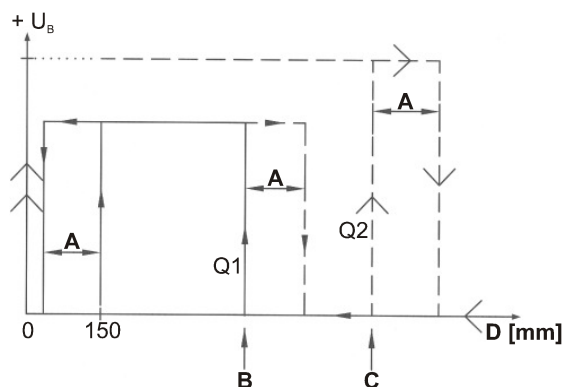
1. Position measurement object just beyond end of measurement range (2300mm).
2. Press teach button for 8 ... 10sec (green LED flashes, yellow LED on).
3. Release teach button and wait for optical confirmation by end of flashing signal (green LED on).

characteristic curve of analog output:



- A are not defined
 B linearity not defined C
 measurement range D
 object present
 E no object detected
 F measurement distance

characteristic curve of switching outputs:



- A hysteresis
 B switching point Q1 (teach-point) C
 switching point Q2 (teach-point) D
 measurement distance

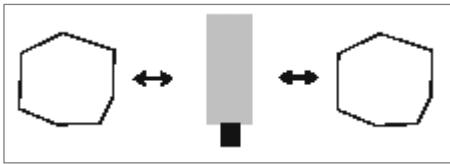
LED display

In standard mode the green and yellow LED work as LED display for switching output 1. The status of switch-ing output 2 is not signaled.

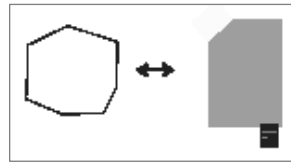
Mounting instructions

The drilled-through holes and threaded holes are suitable for the individual mounting of laser PT700520. Fur-thermore suitable mounting systems such as AP000023, AP000024 or AP000025 can be ordered separately. When mounting, avoid application of excessive force on the housing.

In order to keep measurement errors as low as possible please pay attention that the objects are properly placed in the measurement area (as shown in the pictures below):

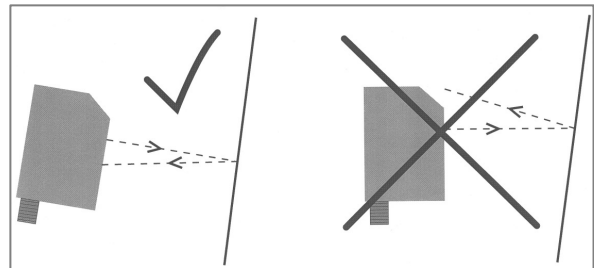


direction of entry 1

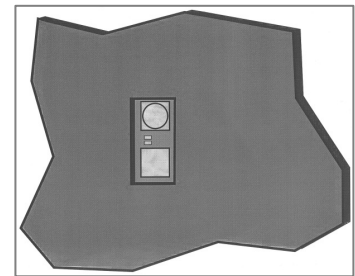


direction of entry 2

If the measurement object to be detected has a reflecting surface, a measurement may not be possible depending on the angle in which the light is reflected by the measurement surface. Adjust the angle between the sensor and the measurement object such that the sensor can reliably detect the measurement object.



If the PT700520 has to be installed behind a cover, the chase has to have at least the size of the optical glass cover. Otherwise, a correct measurement is not possible or can not be guaranteed.



safety instructions

- The PT700520 operate with a red light laser of class 2 acc. to EN 60825-1. If you look into the beam path over a longer period, the retina of your eye may be damaged!
- Never look directly into the beam path. Do not point the laser beam of PT70 at persons!
- When mounting and aligning the PT70 take care to avoid reflections of the laser beam off reflective surfaces!
- The use of operating and adjusting devices other than those specified in the technical description, carrying out of differing procedures, or improper use of the optical laser distance sensor may lead to dangerous exposure to radiation.
- The use of optical instruments or devices in combination with the device increases the danger of eye damage!
- Adhere to the applicable legal and local regulations regarding protection from laser beams acc. to EN 60825-1 in its latest version.
- The PT70 uses a laser diode with low power in the visible red light range with an emitted wavelength of about 635nm.
- The glass optics cover is the only opening through which the laser radiation can escape from the device. The housing of the PT70 is sealed and has no parts that need to be adjusted or maintained by the user. The device must not be tampered with and must not be changed in any way! The destruction of the seal voids the warranty!
- It is important to attach the stick-on labels delivered with the device (notice signs)! If the signs could be covered due to the installation location of the PT70, attach them close to the PT70 so that it is not possible to look into the laser beam when reading this notices.
- **Warning:** Never use these devices in applications where the safety of a person depends on their functionality.