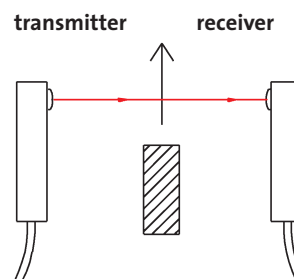


Details of the optical laser sensors
General

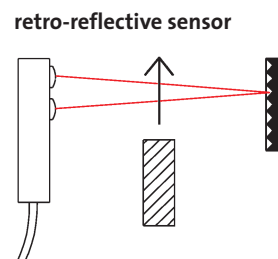
Laser sensors are contactless position switches and resistant to mechanical wear. They are preferably used for applications with high demands in terms of reliability, switching frequency, lifetime, sampling frequency, sensing range or operating distance. The application of the laser light provides for a broad application range that is extraordinary. The use of interference filters, polarized and pulsed light allows a secure operation even when the power of an external light source exceeds 10,000 lux. The extremely narrow light beam allows the secure detection of very small objects, even in the size of a hair. The absence of mutual interference frequently allows for an operation of several sensors in a very confined space. Visible class 2 laser light enables easy adjustment even for very small objects.

Laser sensors come in different versions:
✓ Laser through-beam sensor:

Transmitter and receiver have been installed in separate housings. The transmitter is aligned in a way that its laser beam hits the lens of the receiver. An object interrupting or dampening the laser beam causes the output to switch. The transmitting power can be adjusted. "Special receivers" feature a controlled response sensitivity, i. e. the output of the receiver switches independently of the transmitter's or receiver's degree of soiling, when half of the laser beam has been covered. With an analog output (0 to 10V), it is possible to monitor the degree of soiling.

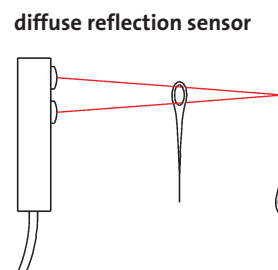

✓ Laser retro-reflective sensor:

Transmitter and receiver have been installed in the same housing. The light emitted by the transmitting diode is reflected on a reflector or on a retro-reflective film. Any object interrupting or weakening the laser beam on its path from the transmitter via the reflector to the receiver causes the output to switch. Transparent or high-gloss objects can be recognized securely that way using a special layout for the sensor.


✓ Laser diffuse reflection sensor:

Transmitter and receiver have been installed in the same housing. The light beamed by the transmitting diode hits an object of whatever shape and colour and is reflected by it. The distance of the object has a linear correlation to the reflecting angle. The receiver can be set in a way that the switching output will be activated when a defined distance has been reached (background suppression by triangulation).

Diffuse reflection sensors with analogue output provide a voltage (0 to 10V DC) or current (4 to 20mA) signal, which makes a distance measurement possible.



ipf laser sensors are quality products. State-of-the-art technology and proven components ensure risk-free (class 2 lasers) ease of use.

laser classes

The new laser classes according to DIN EN 60825-1/11.2001

class (new)	basic concept	wavelength, for which the class is defined	time base	accessible emission limit (AEL) for the visible	measurement	comment
1	eye safe	all	100sec or 30,000sec	depending on wavelength	50mm in 2mm 7mm in 14mm	old class 1
2	Eye safe by aversion responses plus blink reflex	400 ... 700nm	0.25sec	1mW 7mm in 14mm	50mm in 2mm	old class 2