

General information

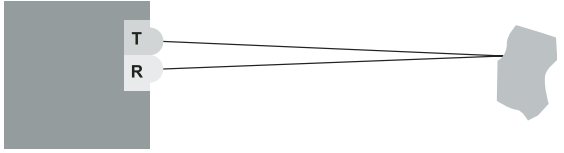
Description

Basic modes of operation

Basic mode of operation

Diffuse reflective sensors

These receive the light reflected back from the object. If a defined quantity of light is detected, the output signal is tripped. The nominal operating distances extend up to 2000mm depending on type. The achievable sensing distance depends on the size of the object to be detected, its color, and its condition, such as surface roughness.

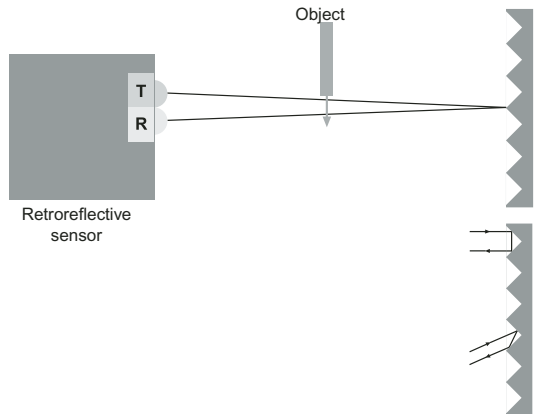


Example of reflection factors on level, aligned surfaces:

• Standard white test card	90%	• Aluminum, black anodized	115%
• Standard gray test card	18%	• Aluminum, bare	140%
• White paper	80%	• Car tires	1.5%
• Wooden boards	20%	• Transparent plastic bottles	40%
• Beer froth	70%		

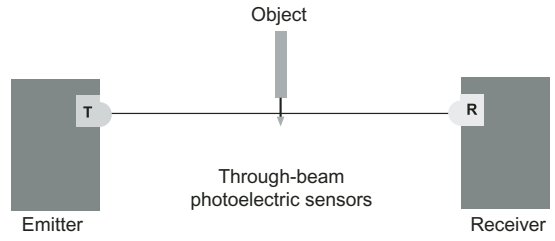
Retro-reflective sensors

These are used for larger distances to be monitored. The emitted light beam is reflected by a reflector positioned on the other side of the object. If the light path is interrupted, the signal is tripped. The design of the reflector ensures reliable operating even if the object is imprecisely aligned. The sensor distances extend up to 5000mm depending on type.



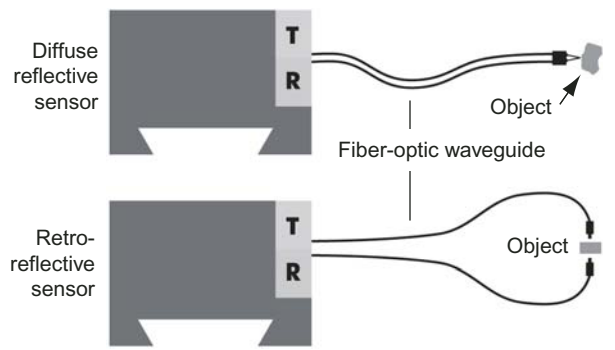
Thru-beam photo-electric sensors

These sensors have a separate light source and receiver.

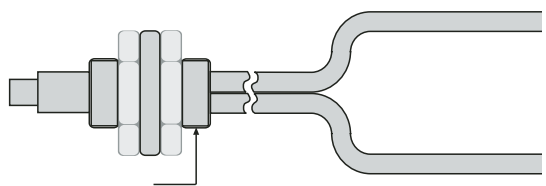


Fiber-optic waveguides

These extend the range of possible applications of photoelectric fiber sensors with important additional fields of application. The upstream fiber optic waveguides define whether the sensor is to operate as a thru-beam photoelectric sensor or as a diffuse reflective photoelectric sensor. Sensors with fiber-optic waveguides are used, primarily, to detect small objects, even under cramped conditions. Depending on the design of the fiber-optic waveguide and fiber head, it is also possible to use these systems at high temperatures. Plastic fiber-optic waveguides can be shortened by the user to appropriate length with the supplied tools.

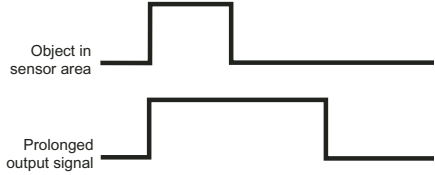


Fiber-optic waveguide head for direct detection mode.



Pulse prolongation

This allows even very quickly moving objects to be detected; i.e., an adequately long signal to be sent to a downstream control.



Safety reserve and optical failure warning indicator

These are used primarily to ensure the long term, trouble-free operating of the sensor and to detect measurement failures at an early stage. Owing to the environments in which photoelectric sensors are used, contamination of the lenses may occur over the course of time so that the light detected by the receiver is reduced. The optical failure warning indicator allows the user to set the receive level with an adequate safety reserve during installation. If the light receive level drops to the optical failure warning range, the sensor does still operate but the user is informed that reliable operating is no longer guaranteed in the long term.

