

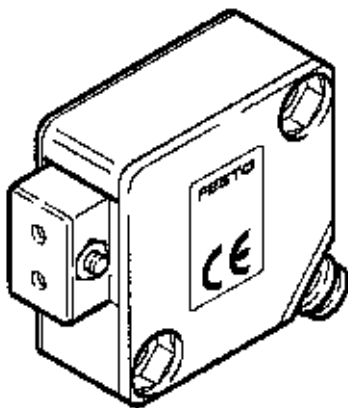
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Fibre-optic device SOEG-L-Q30-P-A-S-2L

Optoelectronic sensors



Optoelectronic sensors

Variants

Size

- M12x1 external thread
- M18x1 external thread
- Rectangular design

- Voltage: 10 ... 30 V DC
- Choice of NPN or PNP output
- Plug or cable connection

- Diffuse light sensor, cylindrical or rectangular design

- Retro-reflective sensors, cylindrical or rectangular design
- Reflectors

- Through-beam sensors, cylindrical or rectangular design

- Fibre optic units, rectangular design
- Fibre optic cables

Features

- Ranges to 6000 mm
- IP 65 protection

Accessories:

- Mounting bracket for optical sensors with rectangular design

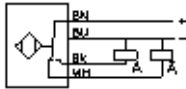
- Cutting tool SOES-LKS for polymer fibre optic cable

The fibre optic cable is guided within the cutter to ensure a clean, right-angle cutting surface, thus keeping light losses to a minimum. In order to obtain the highest-quality cuts, each hole should be used once only.

Sensor tester SM-TEST-1

The sensor tester is used to test and adjust sensors and proximity switches. The sensor tester facilitates commissioning and service work.

- Voltage supply for testing operation of proximity switches
- Adjustment of proximity switches while attached to cylinders
- Identification of switching outputs of proximity switches and sensors with PNP, NPN, NC and NO functions by means of



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the appropriate
LED.

Retro-reflective sensors

Sensors are equipped with polarizing filters, assuring that they only respond to light returned by special reflectors. These are based upon the triple mirror principle. The choice of the most suitable reflector for a given application is governed by the required working range and available mounting facilities

.Fibre optic cable

A fibre optic cable can consist of a bundle of glass fibres, or one or more plastic fibres. The function of a fibre optic cable is to guide light from one place to another, even around corners. This is made possible by exploiting the phenomenon of total internal reflection. Total internal reflection occurs whenever light from a material with a high refractive index impinges on the boundary between this material, and a medium with a lower refractive index at an angle less than the maximum angle for total internal reflection. The fibres consist of a core (with a high refractive index) and a sheath (with a low refractive index). Light is constantly reflected back and forth within this construction as a result of total internal reflection, and is thus even able to traverse curved paths.

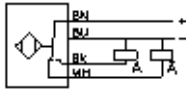
Installation

Optoelectronic sensors must not be allowed to interfere with each other's operation. A certain minimum distance must be maintained between sensors. This distance depends principally on the sensitivity to which the sensors have been set. For sensors fitted with fibre optic cables, the distance is heavily dependent upon the type of utilised fibre optic cable.

Alignment

Through-beam sensors

- First position the receiver as desired and secure it.
- Then align the transmitter as accurately as possible to the



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receiver.

Retro-reflective sensors

- First position the reflector as desired and secure it.
- Cover the reflector so that only the centre remains exposed (25% of reflector's surface area).
- Install the retro-reflective sensor such that reliable switching operation is obtained.
- Finally, remove the cover from the reflector.

Diffuse sensors

- Align the sensor to the object to be scanned such that reliable operation is obtained.
- In order to obtain reliable operation, the operating reserve must be active.

Operating reserve

Operating reserve is a measure of the excess radiant energy which falls onto the light-gathering surface, and is evaluated by the light

receiver. Operating reserve may diminish over a period of time due to contamination, changing reflection factor of the object to be

scanned and ageing of the transmitter diode, so that reliable operation is no longer assured.

Certain sensors are equipped with a second LED (green) which lights up when approx. 80% of the sensor's available working range is

being utilised. With certain other sensors, a yellow LED flashes when available operating reserve is insufficient. This allows for prompt

recognition of inadequate operating reliability.

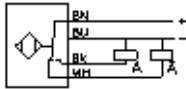
Operating reserve switching hysteresis

Correction factors

The specified working ranges for diffuse sensors are determined using test cards (Kodak Gray Cards). For other surfaces, the switching point should be determined by applying the listed correction factors.

Working range

The specified working range is the maximum possible distance between the transmitter and receiver (through-beam sensor). To obtain



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this maximum, the potentiometer must be set to MAX and the specified reflector (retro-reflective sensor) must be used.

Switching functions

Dark switching

A "dark switching" function means that the respective output conducts current (i.e. is activated) when no light strikes the receiver. This is equivalent to a normally closed function (NC).

Light switching

A "light switching" function means that the respective output conducts current (i.e. is activated) when light strikes the receiver. This is equivalent to a normally open function (NO).

Parallel connection

It is possible to connect optoelectronic sensors in parallel to obtain any desired logic functions.

- Current consumption increases
- Inverse currents are cumulative, with the result that impermissibly large voltage drops may occur across the load even if the sensors are non-conductive.

SOEG-L-Q30-P-A-S-2L

Fibre-optic device

Data sheet

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Feature	Data/description
EU conformity (CE)	CE
Note on EU conformity	Electromagnetic compatibility
Signal processing (measuring principle)	red light
Switch triggering	Reflex/Interrupt
Function on actuation	sender and receiver
Output potential (el. output)	PNP
Coverage range max.	120 mm
Minimum ambient temperature	-5 °C
Maximum ambient temperature	55 °C
Air connection type elec.	Plug
Thread for connector	M 8x1
Number of pins, plug connection	4
Operating status display	Yellow LED
Short-circuit strength	Pulsed
Protection against incorrect polarity	built-in
Type of mounting	Hole
Material of housing	PBT-reinforced
Product weight	0,018 kg
Voltage type	DC
Nominal operating voltage [DC]	24 V
Operating voltage min. (DC)	10 V
Operating voltage max. (DC)	30 V
Idle current max.	25 mA
Maximum switching frequency	1000 Hz
Degree of protection	IP65