



- Light sensors and light barriers
- Light sensors with background fade-out
- Fibre-optic units
- Laser light sensors and light barriers
- Distance sensors
- Colour sensor
- Ranges up to 20,000 mm

From standard to high end applications: Pure functionality

FESTO



The new generation of opto-electronic sensors stands out because of its combination of small dimensions with maximum functionality and reliability – whether for standard applications or for special requirements such as colour recognition or distance measurement using lasers. But this is not all. It also shines thanks to its large working range – irrespective of the format or the material involved and let us not forget its optimal price/performance ratio, which will put a smile on the face of even the most avid bargain hunter: everything under control, everything from a single source – with opto-electronic sensors SOE... from Festo.

Compact, high performance

Massively reduced: the dimensions. SOEG-RT and the colour sensor SOEC-RT-Q50 are, in fact, the smallest of their type in the world. They are reliable and include all the important functions. Naturally, the electronic parameters also correspond to those of their larger counterparts.

Simple and reliable

For maximum productivity: The sensitive internal parts of the sensors are offered the best of protection in the form of a sturdy housing, generally to protection class IP67. The simple teach-in mode featured on many of the sensors ensures that you can start working as quickly as possible. They really are easy to use.

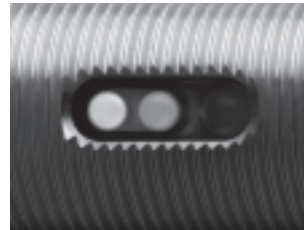
Innovative and economical

Simple purchasing, quick installation, reliable operation: SOE... – this is where innovative, space-saving technology and an excellent cost/benefit ratio meet.

One principle – always the right variant: opto-electronic sensors SOE...



Compact & sturdy



Powerful & reliable



Economic

At a glance – a whole world of opto-electronic sensors

You will agree that it pays to take a closer look. SOE... – the right sensor for every application.

	Advantages for designers	Advantages for purchasers
Compact and sturdy	<ul style="list-style-type: none"> • IP67 for use in critical zones • Small dimensions for installation in the tightest of spaces • For highly-dynamic applications and maximum productivity • Flexible mounting options 	<ul style="list-style-type: none"> • Greater system productivity possible • IP67 for a longer service life
Reliable and simple	<ul style="list-style-type: none"> • Reduced commissioning complexity thanks to simple design and teach-in mode • Reliable object detection even at greater distances • Reliable object detection with the most varied of formats and materials • Reliable object detection even with very small objects 	<ul style="list-style-type: none"> • Easy-to-use feature saves time during installation • Teach-in function for quick commissioning
Economic	<ul style="list-style-type: none"> • Install it and forget it • From standard through to special functions such as colour detection • All functionalities in a smaller space reduces plant size 	<ul style="list-style-type: none"> • One standard worldwide • Everything from a single source reduces the ordering complexity

Sensors SOE..., opto-electronic

Key features



Method of measurement

Diffuse sensors

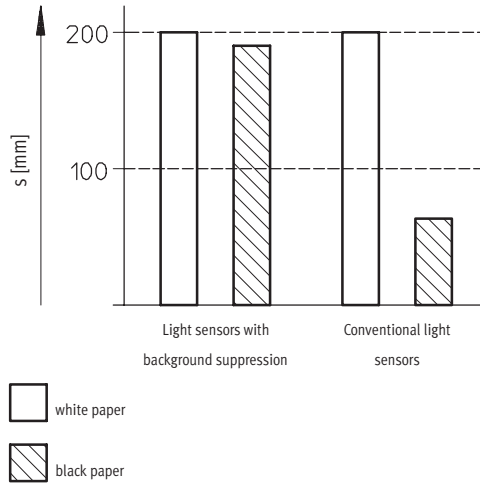
Conventional optical diffuse sensors only evaluate the quantity of light reflected by the object. This makes it impossible to detect a dark (poorly reflective) object against a bright (highly reflective) background. Moreover, objects with different surfaces (material or colour) are detected at differing intervals because of the different reflective properties.

Sensors with background suppression detect objects practically independent of colour and surface. It is not the intensity of the reflected

light that is measured but instead rather the geometric position of the reflected light point, i.e. the distance between the object and the sensor.

Advantages:

- Switching distance practically independent of colour and surface finish
- Can also be used for bright or reflective backgrounds
- Detection of the smallest differences in distance even for changing materials (extreme case black/white)
- Assembly advantage over other systems (simple wiring, no reflector)



Retro-reflective sensors

In retro-reflective sensors the transmitter and the receiver are located in the same housing. The light transmitted is thrown back to the receiver by means of a reflector.

Thanks to the principle of autocollimation, retro-reflective sensors for transparent objects detect transparent materials, irrespective of their shape, across the entire sensing range. Reflections from mirroring surfaces are effectively suppressed using a polarisation filter. The beam of light is sent to the reflector through a semi-transparent mirror. The reflected light is diverted to the receiver via the semi-transparent

mirror. Transmission and receiver light fields are positioned one above the other and are fully congruent with one another.

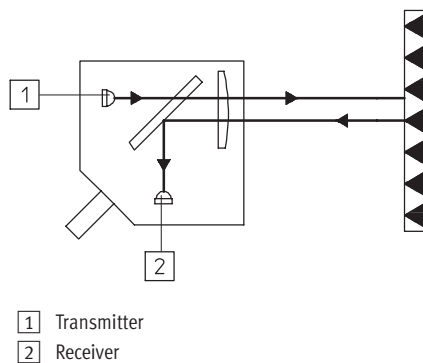
Advantages:

- no dead range
- high precision, low hysteresis
- radially symmetrical sensing range
- good reproducibility irrespective of whether the object to be detected brakes the light beam horizontally or vertically
- high accuracy across the entire sensing range

Disadvantage:

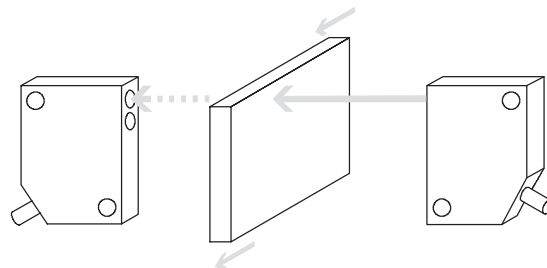
- reduced operating range

Principle of autocollimation



Through-beam sensors


Through-beam sensors comprise two devices, the transmitter and the receiver. Large ranges are made possible due to their separated layout.

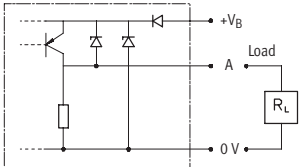
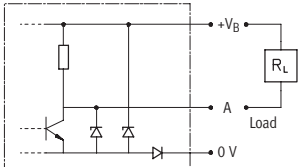


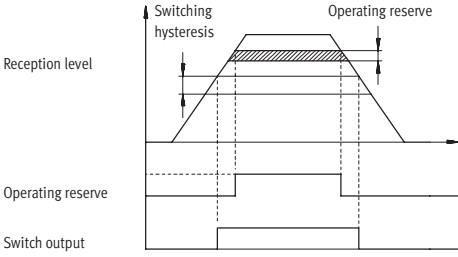
Sensors SOE..., opto-electronic

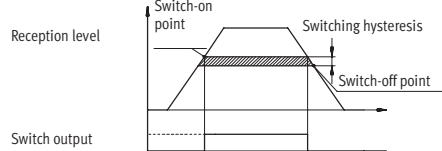
Key features



Switching element functions		
Dark switching	Light switching	Parallel connection
A "dark switching" function means that the output concerned carries current (i.e. is activated), when no light is falling on the receiver. This is the equivalent of a normally closed function (NC).	A "light switching" function means that the output concerned carries current (i.e. is activated), once light falls on the receiver. This is the equivalent of a normally open function (NO).	It is possible to connect opto-electronic sensors in parallel to obtain any desired logical functions.
		<p> Note</p> <p>Current consumption will increase with parallel connection. The inverse currents are accumulative, with the result that an impermissibly large voltage drop may occur across the load even when the sensors are non-conductive.</p>

Switching outputs	
PNP circuit	NPN circuit
<p>The output stage includes a PNP transistor which switches the load to the positive power supply (+V_B). The load is connected between the output and ground (0 V).</p> 	<p>The output stage includes an NPN transistor which switches the load to ground (0 V). The load is connected between the output and the positive power supply (+V_B).</p> 

Operating reserve	
<p>The operating reserve is a measure of the excess radiant energy which falls on 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</p>	<p>second LED which lights up, once approx. 80% of the sensor's available working range is being utilized. With certain other sensors, a yellow LED flashes or a red LED lights up when the available operating reserve is insufficient. This allows for prompt recognition of inadequate operating reliability.</p> 

Switching hysteresis	
<p>Hysteresis causes a defined switching behaviour of a sensor. The specified range always relates to the switch-on point (as an object approaches).</p>	<p>Distance hysteresis is meaningful only for diffuse sensors and the corresponding fibre optic cable version.</p> 

Working range		
<p>The working range is the maximum possible distance between the transmitter and receiver (through-beam sensor). To obtain this maximum, the</p>	<p>potentiometer must be set to MAX and the specified reflector (retro-reflective sensor) must be used.</p>	<p>Unless otherwise specified in the data sheet, the working ranges for diffuse sensors are determined using Kodak Grey Cards (90% grey) as a reference.</p>

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Key features



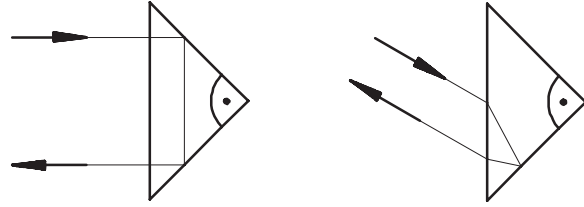
Sensors and monitoring devices
Sensors

8.2

Reflector

Retro-reflective sensors are equipped with polarizing filters which ensure that they respond only to light thrown back by special reflectors. These are designed on the principle of triple

mirrors. The choice of the most suitable reflector for a given application will be governed by the required working range and the available mounting facilities.

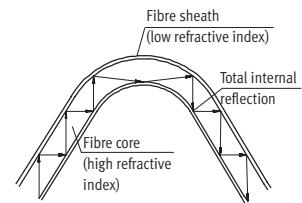


Fibre optics

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 round 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 and a medium with a lower refractive index at an angle less than the maximum angle for total internal reflection.

The fibres of a fibre optic cable consist of a core (with a high refractive index) and a sheath (with a low refractive index). Within this, the light is constantly reflected back and forth as the result of total internal reflection and is thus able to travel even curved paths.



Laser

All of the laser components currently offered by Festo correspond to laser protection class 2 according to EN 60825-1/94

Laser protection class 2

- Maximum radiant energy 1 mW (cw). (cw = continuous wave)
- Beam only in the visible spectral range.
- Due to the high light intensity, the eye is protected by what is termed

- the lid shutting reflex (≤ 0.25 s).
- Appropriate laser warning notices must be displayed on the device.
- No protective measures (covers, encapsulation etc.) are required.
- The user does not require the

- presence of a laser protection officer.
- Class 2 lasers are completely harmless to use. Consequently no safety precautions are required for sensors of laser protection class 2.

Test input

The transmitter of a through-beam sensor is equipped with a test input.

This can be used to switch the transmitter light on and off. The

operation of the sensor can be tested by periodically activating the test

input and evaluating the reaction of the receiver.

Installation

Opto-electronic sensors must not be allowed to interfere with each other during operation. A certain minimum

distance must thus 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 on the type of fibre optic cable used. It is thus not possible to specify any general values.

Alignment

Through-beam sensors

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

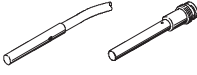




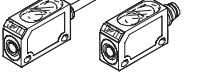
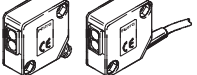
Diffuse sensors

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

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Product range overview



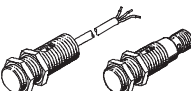
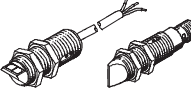
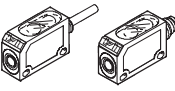
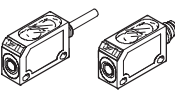
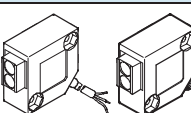
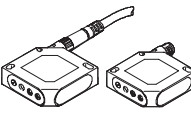
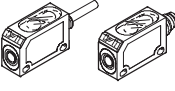


Function	Version	Working range [mm]	Switch output	Switching element function	Electrical connection		→ Page
					Cable	Plug	
Diffuse sensors	∅ 4 mm						
		50	PNP	Light switching	■	-	4 / 8.2-16
					-	■	
			NPN	Light switching	■	-	
					-	■	
	M5						
		50	PNP	Light switching	■	-	4 / 8.2-16
					-	■	
			NPN	Light switching	■	-	
					-	■	
	M12						
		70 ... 300	PNP	Light switching	■	-	4 / 8.2-16
					-	■	
			NPN	Light switching	■	-	
					-	■	
	M18, beam exit straight						
		40 ... 600	PNP	Antivalent	■	-	4 / 8.2-16
					-	■	
			NPN	Antivalent	■	-	
					-	■	
	M18, beam exit lateral						
		0 ... 600	PNP	Light switching	■	-	4 / 8.2-16
					-	■	
			NPN	Light switching	■	-	
				-	■		
20x32x12 mm							
	10 ... 300	PNP	Switchable	■	-	4 / 8.2-20	
				-	■		
		NPN	Switchable	■	-		
				-	■		
30x30x15 mm							
	0 ... 600	PNP	Light switching	■	-	4 / 8.2-20	
				-	■		
		NPN	Light switching	■	-		
				-	■		

Sensors SOE..., opto-electronic

Product range overview

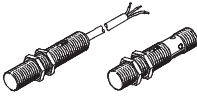
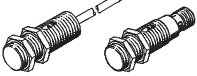
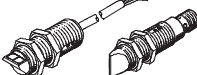
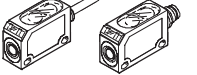
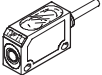
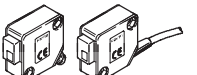
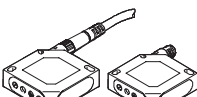


Function	Version	Working range [mm]	Switch output	Switching element function	Electrical connection		→ Page
					Cable	Plug	
Diffuse sensors	∅ 4 mm, with cylindrical light beam						
		10	PNP	Light switching	■	-	4 / 8.2-22
			NPN	Light switching	■	-	
	M5, with cylindrical light beam						
		10	PNP	Light switching	■	-	4 / 8.2-22
			NPN	Light switching	■	-	
	M18, beam exit straight, with background suppression						
		10 ... 120	PNP	Light switching	■	-	4 / 8.2-24
				Light switching	-	■	
			NPN	Light switching	■	-	
				Light switching	-	■	
	M18, beam exit lateral, with background suppression						
		10 ... 120	PNP	Light switching	■	-	4 / 8.2-24
				Light switching	-	■	
NPN			Light switching	■	-		
			Light switching	-	■		
20x32x12 mm, with background suppression							
	25 ... 100	PNP	Switchable	■	-	4 / 8.2-26	
			Switchable	-	■		
		NPN	Switchable	■	-		
			Switchable	-	■		
20x32x12 mm, for distance measurement							
	20 ... 80	PNP	Switchable	■	-	4 / 8.2-29	
				-	■		
30x30x15 mm, with background suppression							
	15 ... 150	PNP	Light switching	■	-	4 / 8.2-26	
			Light switching	-	■		
		NPN	Light switching	■	-		
			Light switching	-	■		
50x50x17 mm, with background suppression							
	30 ... 300	PNP	Antivalent	■	-	4 / 8.2-26	
			Antivalent	-	■		
		NPN	Antivalent	■	-		
			Antivalent	-	■		
Distance sensors	20x32x12 mm						
		20 ... 80	PNP	Switchable	■	-	4 / 8.2-29
-					■		

Sensors SOE..., opto-electronic

Product range overview



Function	Version	Working range [mm]	Switch output	Switching element function	Electrical connection		→ Page
					Cable	Plug	
Retro-reflective sensors	M12						
		1,500	PNP	Dark switching	■	-	4 / 8.2-31
					-	■	
			NPN	Dark switching	■	-	
					-	■	
	M18, beam exit straight						
		2,000	PNP	Dark switching	■	-	4 / 8.2-31
					-	■	
			NPN	Dark switching	■	-	
					-	■	
	M18, beam exit lateral						
		2,000	PNP	Dark switching	■	-	4 / 8.2-31
					-	■	
			NPN	Dark switching	■	-	
-					■		
20x32x12 mm							
	0 ... 2,500	PNP	Switchable	■	-	4 / 8.2-34	
				-	■		
		NPN	Switchable ¹⁾	-	■		
				■	-		
20x32x12 mm, for transparent objects							
	5 ... 500	PNP	Switchable	■	-	4 / 8.2-38	
30x30x15 mm							
	0 ... 2,000	PNP	Dark switching	■	-	4 / 8.2-34	
				-	■		
		NPN	Dark switching	■	-		
				-	■		
50x50x17 mm							
	0 ... 5,500	PNP	Antivalent	■	-	4 / 8.2-34	
				-	■		
		NPN	Antivalent	■	-		
				-	■		

1) Low-cost variant without the teach-in and programming functionality

Sensors SOE..., opto-electronic

Product range overview



Function	Version	Working range [mm]	Switch output	Switching element function	Electrical connection		→ Page
					Cable	Plug	
Through-beam sensors	M18, beam exit straight						
		Transmitter					
		20,000	-	-	■	-	4 / 8.2-40
					-	■	
		Receiver					
		20,000	PNP	Antivalent	■	-	4 / 8.2-40
					-	■	
		NPN	Antivalent	■	-		
				-	■		
	M18, beam exit lateral						
		Transmitter					
		20,000	-	-	■	-	4 / 8.2-40
					-	■	
		Receiver					
		20,000	PNP	Antivalent	■	-	4 / 8.2-40
					-	■	
		NPN	Antivalent	■	-		
				-	■		
	20x32x12 mm						
		Transmitter					
		0 ... 6,000	-	-	■	-	4 / 8.2-43
					-	■	
		Receiver					
		0 ... 6,000	PNP	Switchable	■	-	4 / 8.2-43
				-	■		
	NPN	Switchable	■	-			
			-	■			
30x30x15 mm							
	Transmitter						
	0 ... 6,000	-	-	■	-	4 / 8.2-43	
				-	■		
	Receiver						
	0 ... 6,000	PNP	Dark switching	■	-	4 / 8.2-43	
				-	■		
	NPN	Dark switching	■	-			
			-	■			
50x50x17 mm							
	Transmitter						
	0 ... 15,000	-	-	■	-	4 / 8.2-43	
				-	■		
	Receiver						
	0 ... 15,000	PNP	Antivalent	■	-	4 / 8.2-43	
				-	■		

Sensors SOE..., opto-electronic

Product range overview



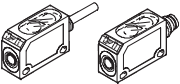
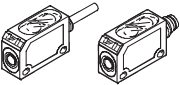
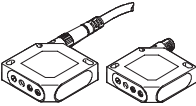
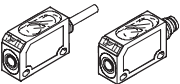
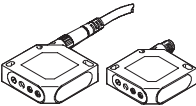
Function	Version	Working range [mm]	Switch output	Switching element function	Electrical connection		→ Page
					Cable	Plug	
Fibre-optic units	20x32x12 mm						
		0 ... 250	PNP	Switchable	■	-	4 / 8.2-46
					-	■	
			NPN	Switchable	■	-	
					-	■	
	30x30x15 mm						
	0 ... 120	PNP	Antivalent	■	-	4 / 8.2-46	
				-	■		
		NPN	Antivalent	■	-		
				-	■		

Function	Version	Description	Length [m]	→ Page
Fibre optic cables	Polymer fibre optic cable LLK			
		Diffuse sensor	2	4 / 8.2-49
		Through-beam sensor	2	
	Glass fibre optic cable LLG			
		Diffuse sensor	0.5	4 / 8.2-49
		Through-beam sensor	0.5	
	Accessories			
	Fibre-optic cutter for polymer fibre optic cable LLK	-	4 / 8.2-50	

Sensors SOE..., opto-electronic

Product range overview



Function	Version	Working range [mm]	Switch output	Switching element function	Electrical connection		→ Page
					Cable	Plug	
Laser diffuse sensors	20x32x12 mm						
		10 ... 150	PNP	Switchable	■	-	4 / 8.2-51
					-	■	
			NPN	Switchable	■	-	
					-	■	
	20x32x12 mm, with background suppression						
		30 ... 110	PNP	Switchable	■	-	4 / 8.2-53
					-	■	
			NPN	Switchable	■	-	
					-	■	
	50x50x17 mm, with background suppression						
		50 ... 300	PNP	Antivalent	■	-	4 / 8.2-53
-					■		
NPN			Antivalent	■	-		
				-	■		
Laser distance sensors	50x50x17 mm	80 ... 300	PNP	Antivalent	-	■	4 / 8.2-56
Laser retro-reflective sensors	20x32x12 mm						
		100 ... 1,000	PNP	Switchable	■	-	4 / 8.2-58
					-	■	
			NPN	Switchable	■	-	
					-	■	
	50x50x17 mm						
	0 ... 12,000	PNP	Antivalent	■	-	4 / 8.2-58	
				-	■		
		NPN	Antivalent	■	-		
				-	■		
Colour sensor	50x50x17 mm	12 ... 32	PNP	Light switching	-	■	4 / 8.2-61

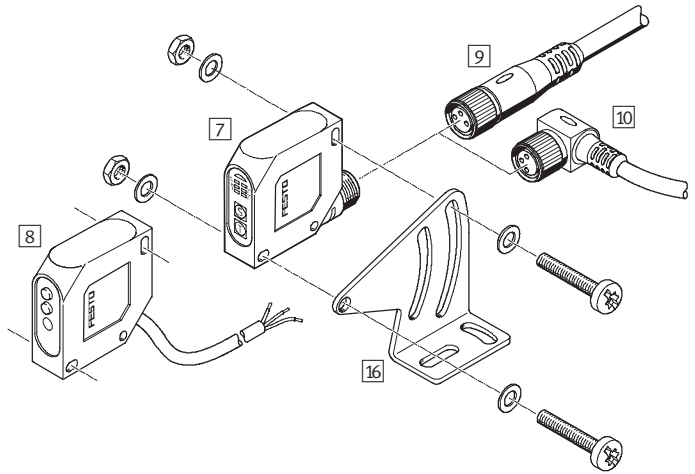
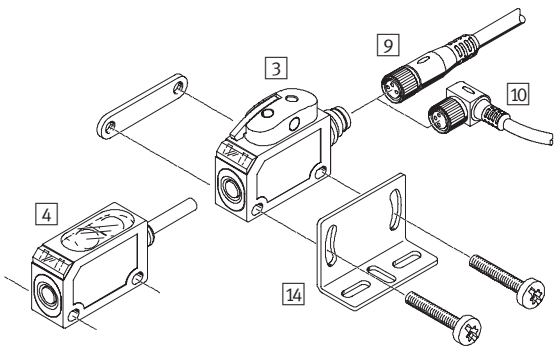
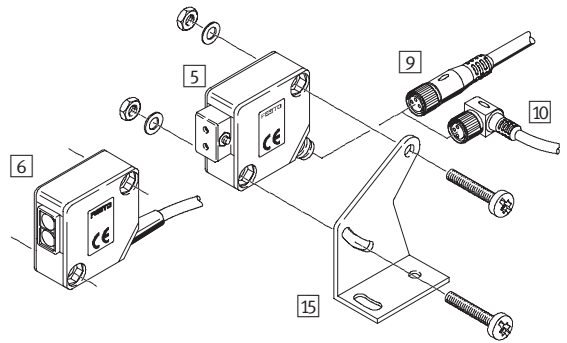
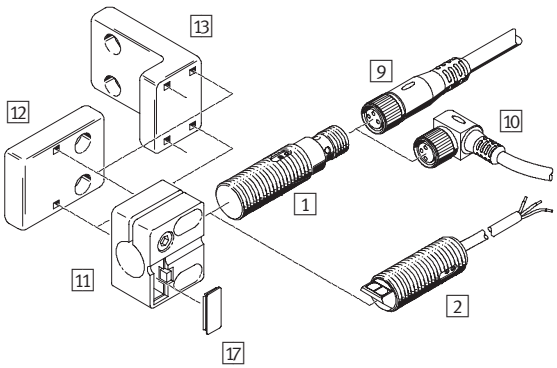
Sensors SOE..., opto-electronic

Type codes

		SOE	G	RSP	Q20	PP	K	2L	TI
Type									
SOE	Opto-electronic sensor								
Construction									
G	Standard sensor								
L	Laser sensor								
C	Colour sensor								
Function									
RT	Diffuse sensor								
RSP	Retro-reflective sensor								
S	Through-beam sensor, transmitter								
E	Through-beam sensor, receiver								
L	Fibre-optic unit								
RTH	Diffuse sensor with background suppression								
RTZ	Diffuse sensor with cylindrical light beam								
RTD	Distance sensor								
RSG	Retro-reflective sensor for transparent objects								
Design, version									
4	Round, Ø 4 mm								
M5	Round, M5								
M12	Round, M12								
M18	Round, M18, beam exit straight								
M18W	Round, M18, beam exit lateral								
Q20	Block design, 20x32x12 mm								
Q30	Block design, 30x30x15 mm								
Q50	Block design, 50x50x17 mm								
Switch output									
PS	PNP, NO contact								
NS	NPN, NO contact								
PA	PNP, antivalent								
NA	NPN, antivalent								
PP	PNP, switchable								
NP	NPN, switchable								
PU	Analogue 0 ... 10 V								
Electrical connection									
K	Cable								
S	Plug								
Display									
L	1 LED								
2L	2 LEDs								
3L	3 LEDs								
7L	7 LEDs								
Options									
	Standard version								
TI	Teach-in by means of a button and via electrical connection								

Sensors SOE..., opto-electronic

Peripherals overview



Sensors and monitoring devices
Sensors
8.2

Sensors SOE..., opto-electronic

Peripherals overview

FESTO

Mounting attachments and accessories		
	Brief description	→ Seite
Näherungsschalter		
1	SOE...-...-S, with plug	4 / 8.2-7
2	SOE...-...-K, with cable	
3	SOE...-...-S, with plug	
4	SOE...-...-K, with cable	
5	SOE...-...-S, with plug	
6	SOE...-...-K, with cable	
7	SOE...-...-S, with plug	
8	SOE...-...-K, with cable	
Plug sockets with cable		
9	SIM-M...-...GD-...	4 / 8.2-66
10	SIM-M...-...WD-...	
Mounting attachments		
11	SIEZ-...B-...	4 / 8.2-65
12	SIEZ-UV	
13	SIEZ-UH	
14	SOEZ-HW-Q20	4 / 8.2-64
15	SOEZ-HW-Q30	
16	SOEZ-HW-Q50	
Inscription label		
17	SIEZ-LB	4 / 8.2-66
Polymer fibre optic cable		
-	SOEZ-LLK-RT	4 / 8.2-49
	SOEZ-LLK-SE	
Glass fibre optic cable		
-	SOEZ-LLG-RT	4 / 8.2-49
	SOEZ-LLG-SE	
Reflectors		
-	SOEZ-RFS	4 / 8.2-63
	SOEZ-RFF	
	SOEZ-RFL	

Sensors and monitoring devices
Sensors

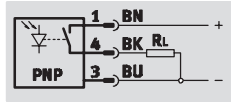
8.2

Diffuse sensors SOEG-RT

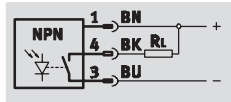
Technical data



Function

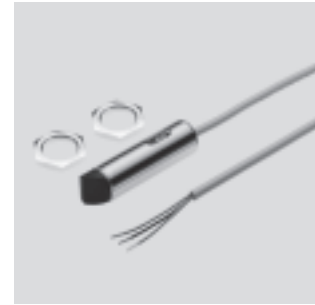


PNP, NO contact, e.g. with plug



NPN, NO contact, e.g. with plug

- Beam exit straight or angled
- Round design
- Variants: \varnothing 4 mm, M5, M12 and M18



General technical data						
Version		\varnothing 4 mm	M5	M12	M18, straight	M18, angled
Method of measurement		Diffuse sensor				
Measured variable		Position				
Light type		infra-red	infra-red	red	red	red
Working range	[mm]	50	50	0 ... 200	0 ... 430	0 ... 600
Setting range, lower limit	[mm]	–	–	70	40	100
Setting range, upper limit	[mm]	–	–	300	600	600
Hysteresis	[mm]	–	–	≤ 30	≤ 60	
Setting options		–	–	Potentiometer	Potentiometer	Potentiometer
Switching status display		Yellow LED				
Operating reserve display		Yellow LED ¹⁾	Yellow LED ¹⁾	Yellow LED ¹⁾	Yellow LED ¹⁾	Green LED
Type of mounting		Clamped	Via lock nut	Via lock nut	Via lock nut	Via lock nut
Tightening torque	[Nm]	–	1.5	10	20	20
Conforms to		DIN EN 60947-5-2				

1) LED flashes when available operating reserve is insufficient

Electrical data							
Version		\varnothing 4 mm	M5	M12	M18, straight	M18, angled	
Switch output		PNP or NPN					
Switching element function		Light switching			Antivalent	Light switching	
Electrical connection	Plug	M8 x 1, 3-pin	M8 x 1, 3-pin	M12x1, 3-pin	M12x1, 3-pin	M12x1, 3-pin	
	Cable	3-core	3-core	3-core	3-core	3-core	
Cable length	[m]	2.5	2.5	2.5	2.5	2.5	
Operating voltage range	[V DC]	10 ... 30	10 ... 30	10 ... 30	10 ... 30	10 ... 36	
Residual ripple	[%]	20	20	20	20	20	
Max. switching frequency	[Hz]	250	250	1,000	1,000	1,000	
Max. output current	[mA]	100	100	200	200	200	
Voltage drop	[V]	≤ 2.0	≤ 2.0	2	2	≤ 2.0	
Idle current	[mA]	15	15	15	20	15	
Protection against short circuit		Pulsed					
Protection against polarity reversal		For all electrical connections					
Protection class		IP67	IP67	IP65/IP67	IP65/IP67	IP65/IP67	
CE marking symbol (see conformity declaration)		As per EU EMC directive					
Certification		–		C-Tick		–	

Diffuse sensors SOEG-RT

Technical data



Materials					
Version	Ø 4 mm	M5	M12	M18, straight	M18, angled
Body	High-alloy stainless steel		Brass, nickel-plated		
Union nut	–	High-alloy stainless steel	Brass, nickel-plated		
Cable sheath	Polyurethane				
Material note	Free of copper and PTFE				
	Contains PWIS (Paint wetting impairment substances)				

Operating and environmental conditions										
Version	Ø 4 mm		M5		M12		M18, straight		M18, angled	
Cable installation	fixed	flexible	fixed	flexible	fixed	flexible	fixed	flexible	fixed	flexible
Ambient temperature [°C]	0 ... 55		0 ... 55		-25 ... +55		-25 ... +55		-25 ... +55	
Corrosion resistance class CRC ¹⁾	4		4		2		2		2	

- 1) Corrosion resistance class 2 according to Festo standard 940 070
 Components requiring moderate corrosion resistance. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.
 Corrosion resistance class 4 according to Festo standard 940 070
 Components requiring higher corrosion resistance. Parts used with aggressive media, e.g. food or chemical industry. These applications should be supported with special tests with the media if required.

Dimensions Download CAD data → www.festo.com/en/engineering

Ø 4 mm

Cable type Plug type

1 Connecting cable 2 Light emitting diode (LED) 3 Light exit 4 Plug suitable for plug socket with cable SIM-M8...

M5

Cable type Plug type

1 Connecting cable 2 Light emitting diode (LED) 3 Light exit 4 Plug suitable for plug socket with cable SIM-M8...

M12

Cable type Plug type

1 Connecting cable 2 Light emitting diode (LED) 3 Potentiometer 4 Plug suitable for plug socket with cable SIM-M12-...

Diffuse sensors SOEG-RT

Technical data

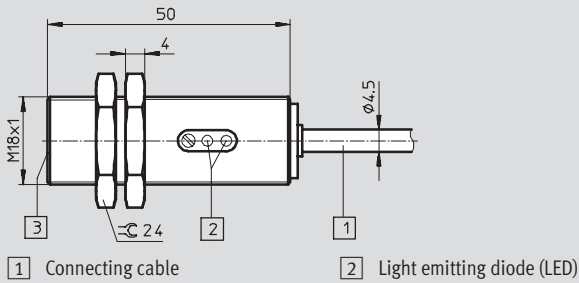


Dimensions

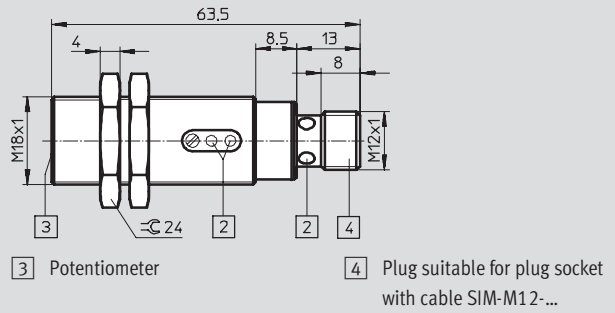
Download CAD data → www.festo.com/en/engineering

M18, beam exit straight

Cable type

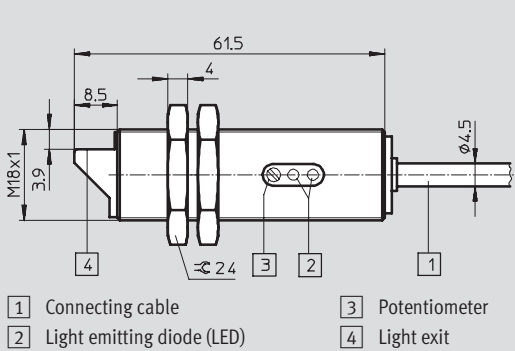


Plug type

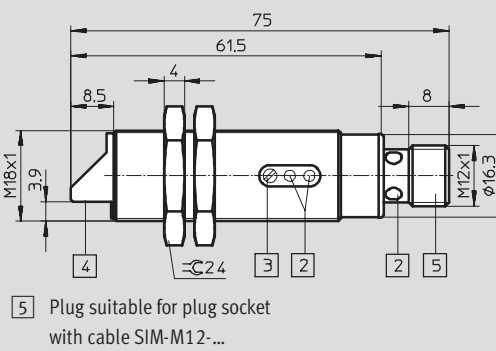


M18, beam exit lateral

Cable type



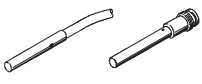

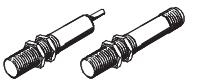
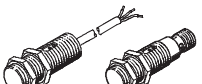
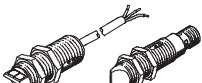
Plug type



Diffuse sensors SOEG-RT

Technical data



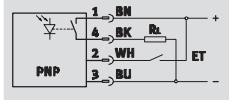
Ordering data								
Version	Working range [mm]	Switch output	Electrical connection		Weight [g]	Free of copper and PTFE	Part No.	Type
			Cable	Plug				
∅ 4 mm								
	50	PNP	■	-	33	■	537 671	SOEG-RT-4-PS-K-L
			-	■	3	■	537 673	SOEG-RT-4-PS-S-L
		NPN	■	-	33	■	537 674	SOEG-RT-4-NS-K-L
			-	■	3	■	537 676	SOEG-RT-4-NS-S-L
M5								
	50	PNP	■	-	35	■	537 677	SOEG-RT-M5-PS-K-L
			-	■	4	■	537 679	SOEG-RT-M5-PS-S-L
		NPN	■	-	35	■	537 680	SOEG-RT-M5-NS-K-L
			-	■	4	■	537 682	SOEG-RT-M5-NS-S-L
M12								
	0 ... 200	PNP	■	-	100	-	165 338	SOEG-RT-M12-PS-K-L
			-	■	32	-	165 339	SOEG-RT-M12-PS-S-L
		NPN	■	-	100	-	165 336	SOEG-RT-M12-NS-K-L
			-	■	32	-	165 337	SOEG-RT-M12-NS-S-L
M18, beam exit straight								
	0 ... 430	PNP	■	-	110	-	165 342	SOEG-RT-M18-PS-K-L
			-	■	85	-	165 343	SOEG-RT-M18-PS-S-L
		NPN	■	-	110	-	165 340	SOEG-RT-M18-NS-K-L
			-	■	85	-	165 341	SOEG-RT-M18-NS-S-L
M18, beam exit lateral								
	0 ... 600	PNP	■	-	123	■	537 701	SOEG-RT-M18W-PS-K-2L
			-	■	56	■	537 702	SOEG-RT-M18W-PS-S-2L
		NPN	■	-	123	■	537 717	SOEG-RT-M18W-NS-K-2L
			-	■	56	■	537 718	SOEG-RT-M18W-NS-S-2L

Diffuse sensors SOEG-RT

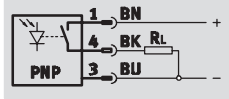
Technical data



Function

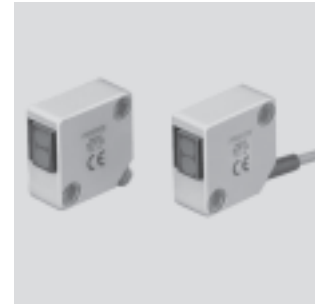


e.g. 20x32x12 mm
PNP, switchable, with plug



e.g. 30x30x15 mm,
PNP, NO contact, with plug

- Beam exit straight
- Block design
- Variants: 20x32x12 and 30x30x15 mm



General technical data		
Version	20x32x12 mm	30x30x15 mm
Method of measurement	Diffuse sensor	
Measured variable	Position	
Light type	red	infra-red
Working range [mm]	10 ... 300	0 ... 600
Setting range, lower limit [mm]	10	0
Setting range, upper limit [mm]	300	600
Setting options	Teach-in Teach-in via electrical connection	Potentiometer
Max. light spot [mm]	12x12 mm at a sensing range of 160 mm	–
Switching status display	Yellow LED	
Operating reserve display	Green LED	
Type of mounting	Via through-holes	
Conforms to	DIN EN 60947-5-2	

Electrical data		
Version	20x32x12 mm	30x30x15 mm
Switch output	PNP or NPN	
Switching element function	Switchable	Light switching
Electrical connection	Plug	M8 x 1, 4-pin
	Cable	4-core
Cable length [m]	2.0	2.5
	2.5	2.0
Operating voltage range [V DC]	10 ... 30	10 ... 30
Residual ripple [%]	10	20
Max. switching frequency [Hz]	1,000	1,000
Max. output current [mA]	100	200
Voltage drop [V]	≤ 2.4	2.0
Idle current [mA]	35	25
Protection against short circuit	Pulsed	
Protection against polarity reversal	For all electrical connections	
Protection class to EN 60 529	IP67	IP65
CE marking symbol (see conformity declaration)	As per EU EMC directive As per EU low voltage directive	As per EU EMC directive
Approval	c UL us - Listed (OL)	–

Materials		
Version	20x32x12 mm	30x30x15 mm
Body	Acrylic butadiene styrene	Polybutylene terephthalate, reinforced
Cable sheath	Polyurethane	
Material note	Free of copper and PTFE	

Diffuse sensors SOEG-RT

Technical data



Operating and environmental conditions				
Version	20x32x12 mm		30x30x15 mm	
Cable installation	fixed	flexible	fixed	flexible
Ambient temperature [°C]	-20 ... +60	-5 ... +60	-25 ... +55	-5 ... +55
Corrosion resistance class CRC ¹⁾	4 ²⁾ / 2 ³⁾		2	

- 1) Corrosion resistance class 2 according to Festo standard 940 070
 Components requiring moderate corrosion resistance. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.
 Corrosion resistance class 4 according to Festo standard 940 070
 Components requiring higher corrosion resistance. Parts used with aggressive media, e.g. food or chemical industry. These applications should be supported with special tests with the media if required.
- 2) Cable type
 3) Plug type

Dimensions Download CAD data → www.festo.com/en/engineering

20x32x12 mm

Cable type **Plug type**

1) Connecting cable 2) Plug suitable for plug socket with cable SIM-M8-... 3) Mounting holes 5) Receiver
 4) Teach-in 6) Transmitter

30x30x15 mm

Cable type **Plug type**

1) Connecting cable 2) Plug suitable for plug socket with cable SIM-M8-... 3) Mounting holes 6) Receiver
 4) Potentiometer 7) Transmitter
 5) Light emitting diode (LED)

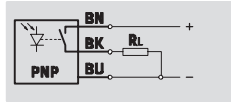
Ordering data							
Version	Working range [mm]	Switch output	Electrical connection		Weight [g]	Part No.	Type
			Cable	Plug			
20x32x12 mm							
	10 ... 300	PNP	■	-	36	537 732	SOEG-RT-Q20-PP-K-2L-TI
			-	■	7	537 731	SOEG-RT-Q20-PP-S-2L-TI
		NPN	■	-	36	537 734	SOEG-RT-Q20-NP-K-2L-TI
			-	■	7	537 733	SOEG-RT-Q20-NP-S-2L-TI
30x30x15 mm							
	0 ... 600	PNP	■	-	85	165 350	SOEG-RT-Q30-PS-K-2L
			-	■	18	165 351	SOEG-RT-Q30-PS-S-2L
		NPN	■	-	85	165 348	SOEG-RT-Q30-NS-K-2L
			-	■	18	165 349	SOEG-RT-Q30-NS-S-2L

Diffuse sensors SOEG-RTZ

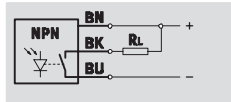
Technical data



Function

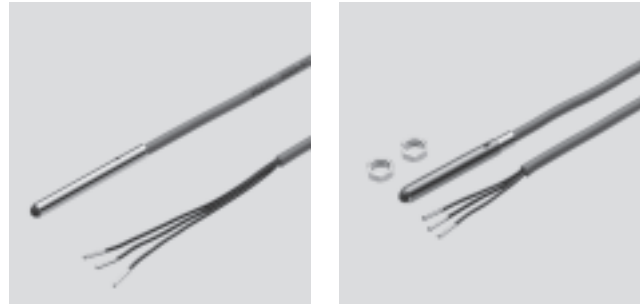


PNP, NO contact



NPN, NO contact

- Cylindrical light beam
- Beam exit straight
- Round design
- Variants: Ø 4 mm and M5



General technical data		
Version	Ø 4 mm	M5
Method of measurement	Diffuse sensor with cylindrical light beam	
Measured variable	Position	
Light type	infra-red	infra-red
Working range [mm]	10	10
Setting options	-	-
Switching status display	Yellow LED	
Operating reserve display	Yellow LED ¹⁾	
Type of mounting	Clamped	Via lock nut
Tightening torque [Nm]	-	1.5
Conforms to	DIN EN 60947-5-2	DIN EN 60947-5-2

1) LED flashes when available operating reserve is insufficient

Electrical data		
Switch output	PNP or NPN	
Switching element function	Light switching	
Electrical connection	Cable	3-core
Cable length [m]	2.5	
Operating voltage range [V DC]	10 ... 30	
Residual ripple [%]	20	
Max. switching frequency [Hz]	250	
Max. output current [mA]	100	
Voltage drop [V]	≤ 2.0	
Idle current [mA]	15	
Protection against short circuit	Pulsed	
Protection against polarity reversal	For all electrical connections	
Protection class to EN 60 529	IP67	
CE marking symbol (see conformity declaration)	As per EU EMC directive	

Materials		
Version	Ø 4 mm	M5
Body	High-alloy stainless steel	
Union nut	-	High-alloy stainless steel
Cable sheath	Polyurethane	
Material note	Free of copper and PTFE	

Diffuse sensors SOEG-RTZ

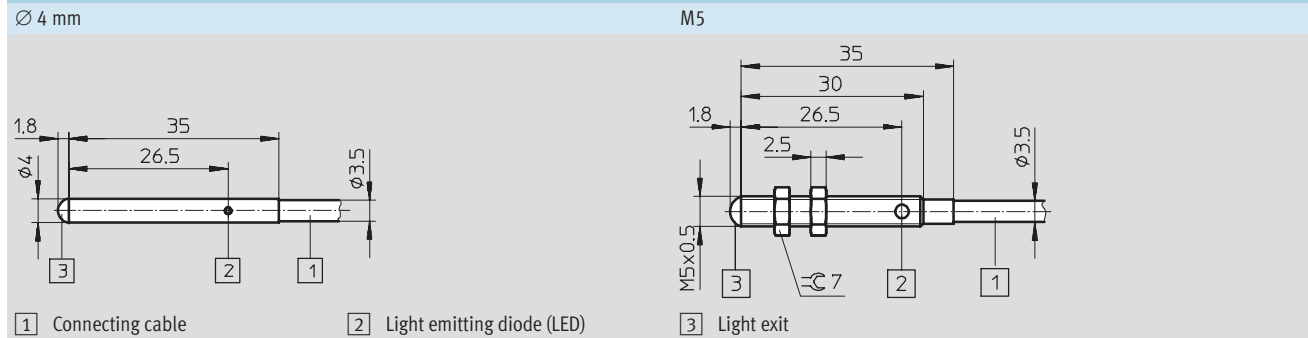
Technical data



Operating and environmental conditions		
Cable installation	fixed	flexible
Ambient temperature [°C]	0 ... 55	
Corrosion resistance class CRC ¹⁾	4	

1) Corrosion resistance class 4 according to Festo standard 940 070
 Components requiring higher corrosion resistance. Parts used with aggressive media, e.g. food or chemical industry. These applications should be supported with special tests with the media if required.

Dimensions Download CAD data → www.festo.com/en/engineering



Ordering data							
Version	Working range [mm]	Switch output	Electrical connection		Weight [g]	Part No.	Type
			Cable	Plug			
∅ 4 mm							
	10	PNP	■	-	28	537 672	SOEG-RTZ-4-PS-K-L
		NPN	■	-	28	537 675	SOEG-RTZ-4-NS-K-L
M5							
	10	PNP	■	-	30	537 678	SOEG-RTZ-M5-PS-K-L
		NPN	■	-	30	537 681	SOEG-RTZ-M5-NS-K-L

Sensors and monitoring devices
Sensors

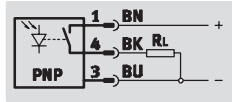
8.2

Diffuse sensors SOEG-RTH

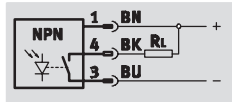
Technical data



Function

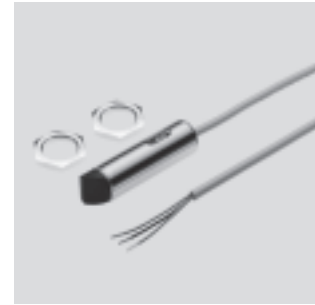


PNP, NO contact, e.g. with plug



NPN, NO contact, e.g. with plug

- With background suppression
- Beam exit straight or angled
- Round design
- Version: M18



General technical data	
Method of measurement	Diffuse sensor with background suppression
Measured variable	Position
Light type	red
Working range [mm]	10 ... 120
Setting range, lower limit [mm]	10
Setting range, upper limit [mm]	120
Setting options	Potentiometer
Switching status display	Yellow LED
Operating reserve display	Green LED
Type of mounting	Via lock nut
Tightening torque [Nm]	20
Conforms to	DIN EN 60947-5-2

Electrical data	
Switch output	PNP or NPN
Switching element function	Light switching
Electrical connection	Plug: M12x1, 3-pin Cable: 3-core
Cable length [m]	2.5
Operating voltage range [V DC]	10 ... 36
Residual ripple [%]	20
Max. switching frequency [Hz]	500
Max. output current [mA]	200
Voltage drop [V]	≤ 2.0
Idle current [mA]	25
Protection against short circuit	Pulsed
Protection against polarity reversal	For all electrical connections
Protection class to EN 60 529	IP65/IP67
CE marking symbol (see conformity declaration)	As per EU EMC directive

Materials	
Body	Nickel-plated brass
Union nut	Nickel-plated brass
Cable sheath	Polyurethane
Material note	Free of copper and PTFE

Diffuse sensors SOEG-RTH

Technical data



Operating and environmental conditions		
Cable installation	fixed	flexible
Ambient temperature [°C]	-25 ... +55	-5 ... +55
Corrosion resistance class CRC ¹⁾	2	

1) Corrosion resistance class 2 according to Festo standard 940 070
 Components requiring moderate corrosion resistance. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.

Dimensions Download CAD data → www.festo.com/en/engineering

M18, beam exit straight

Cable type Plug type

1 Connecting cable 3 Potentiometer
 2 Light emitting diode (LED) 4 Light exit

5 Plug suitable for plug socket with cable SIM-M12-...

M18, beam exit lateral

Cable type Plug type

1 Connecting cable 3 Potentiometer
 2 Light emitting diode (LED) 4 Light exit

5 Plug suitable for plug socket with cable SIM-M12-...

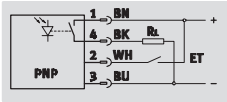
Ordering data						
Version	Working range [mm]	Switch output	Electrical connection		Weight [g]	Part No. Type
			Cable	Plug		
M18, beam exit straight						
	10 ... 120	PNP	■	-	121	537 687 SOEG-RTH-M18-PS-K-2L
			-	■	53	537 689 SOEG-RTH-M18-PS-S-2L
		NPN	■	-	121	537 705 SOEG-RTH-M18-NS-K-2L
			-	■	53	537 707 SOEG-RTH-M18-NS-S-2L
M18, beam exit lateral						
	10 ... 120	PNP	■	-	124	537688 SOEG-RTH-M18W-PS-K-2L
			-	■	57	537690 SOEG-RTH-M18W-PS-S-2L
		NPN	■	-	124	537 706 SOEG-RTH-M18W-NS-K-2L
			-	■	57	537708 SOEG-RTH-M18W-NS-S-2L

Diffuse sensors SOEG-RTH

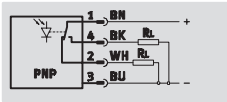
Technical data



Function

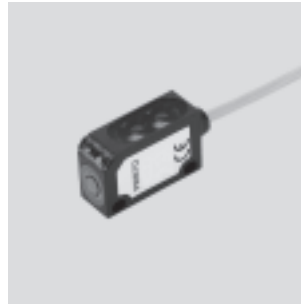


e.g. 20x32x12 mm
PNP, switchable, with plug



e.g. 50x50x17 mm,
PNP, antivalent, with plug

- With background suppression
- Beam exit straight
- Block design
- Variants: 20x32x12, 30x30x15 and 50x50x17 mm



General technical data			
Version	20x32x12 mm	30x30x15 mm	50x50x17 mm
Method of measurement	Diffuse sensor with background suppression		
Measured variable	Position		
Light type	red		
Working range [mm]	25 ... 100	15 ... 150	30 ... 300
Reference material	18%	90%	18%
Setting range, lower limit [mm]	25	15	30
Setting range, upper limit [mm]	100	150	300
Setting options	Teach-in Teach-in via electrical connection	Potentiometer	Potentiometer
Max. light spot [mm]	5x5 mm at a sensing range of 60 mm	–	8x8 mm at a sensing range of 200 mm
Ready status display	–	–	Green LED
Switching status display	Yellow LED		
Operating reserve display	Green LED	Green LED	Red LED ¹⁾
Type of mounting	Via through-holes		
Conforms to	DIN EN 60947-5-2		

1) LED lights up when available operating reserve is insufficient

Electrical data			
Version	20x32x12 mm	30x30x15 mm	50x50x17 mm
Switch output	PNP or NPN		
Switching element function	Switchable	Light switching	Antivalent
Electrical connection	Plug	M8 x 1, 4-pin	M12x1, 4-pin
	Cable	4-core	3-core
Cable length [m]	2.0	2.5	3.0
Operating voltage range [V DC]	10 ... 30	10 ... 36	10 ... 30
Residual ripple [%]	10	20	10
Max. switching frequency [Hz]	1,000	500	1,000
Max. output current [mA]	100	200	200
Voltage drop [V]	≤ 2.4	≤ 2.0	≤ 2.4
Idle current [mA]	35	25	35
Protection against short circuit	Pulsed		
Protection against polarity reversal	For all electrical connections		
Protection class to EN 60 529	IP67	IP65	IP67
CE marking symbol (see conformity declaration)	As per EU EMC directive		
Approval	c UL us - Listed (OL)	–	c UL us - Listed (OL)

Diffuse sensors SOEG-RTH

Technical data



Materials			
Version	20x32x12 mm	30x30x15 mm	50x50x17 mm
Body	Acrylic butadiene styrene	Polybuteneterephthalate	Acrylic butadiene styrene
Cable sheath	Polyurethane		
Material note	Free of copper and PTFE		

Operating and environmental conditions						
Version	20x32x12 mm		30x30x15 mm		50x50x17 mm	
Cable installation	fixed	flexible	fixed	flexible	fixed	flexible
Ambient temperature [°C]	-20 ... +60	-5 ... +60	-25 ... +55	-5 ... +55	-20 ... +60	-5 ... +60
Corrosion resistance class CRC ¹⁾	4 ²⁾ / 2 ³⁾		2		4	

- 1) Corrosion resistance class 2 according to Festo standard 940 070
 Components requiring moderate corrosion resistance. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.
 Corrosion resistance class 4 according to Festo standard 940 070
 Components requiring higher corrosion resistance. Parts used with aggressive media, e.g. food or chemical industry. These applications should be supported with special tests with the media if required.
- 2) Cable type
 3) Plug type

Dimensions Download CAD data → www.festo.com/en/engineering

20x32x12 mm

Cable type **Plug type**

1 Connecting cable 2 Plug suitable for plug socket with cable SIM-M8-... 3 Mounting holes 5 Receiver
 4 Teach-in 6 Transmitter

30x30x15 mm

Cable type **Plug type**

1 Connecting cable 2 Plug suitable for plug socket with cable SIM-M8-... 3 Mounting holes 6 Receiver
 4 Potentiometer 7 Transmitter
 5 Light emitting diode (LED)

Diffuse sensors SOEG-RTH

Technical data



Dimensions Download CAD data → www.festo.com/en/engineering

50x50x17 mm

Cable type Plug type

1 Connecting cable 3 Mounting holes
2 Plug suitable for plug socket with cable SIM-M12-... 4 Potentiometer

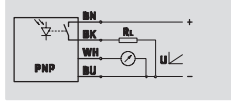
5 Light emitting diode (LED) 7 Receiver
6 Numerical display 8 Transmitter

Ordering data							
Version	Working range [mm]	Switch output	Electrical connection		Weight [g]	Part No.	Type
			Cable	Plug			
20x32x12 mm							
	25 ... 100	PNP	■	–	36	537 724	SOEG-RTH-Q20-PP-K-2L-TI
			–	■	7	537 723	SOEG-RTH-Q20-PP-S-2L-TI
		NPN	■	–	36	537 726	SOEG-RTH-Q20-NP-K-2L-TI
			–	■	7	537 725	SOEG-RTH-Q20-NP-S-2L-TI
30x30x15 mm							
	15 ... 150	PNP	■	–	75	537 719	SOEG-RTH-Q30-PS-K-2L
			–	■	17	537 720	SOEG-RTH-Q30-PS-S-2L
		NPN	■	–	75	537 721	SOEG-RTH-Q30-NS-K-2L
			–	■	17	537 722	SOEG-RTH-Q30-NS-S-2L
50x50x17 mm							
	30 ... 300	PNP	■	–	122	537 771	SOEG-RTH-Q50-PA-K-3L
			–	■	32	537 773	SOEG-RTH-Q50-PA-S-3L
		NPN	■	–	122	537 772	SOEG-RTH-Q50-NA-K-3L
			–	■	32	537 774	SOEG-RTH-Q50-NA-S-3L

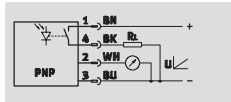
Distance sensors SOEG-RTD

Technical data

Function

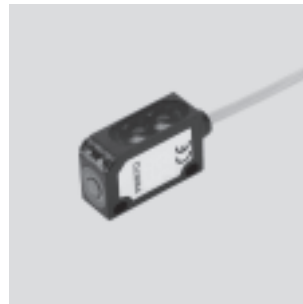


PNP and analogue output with cable



PNP and analogue output with plug

- Sensor for distance measurement
- Beam exit straight
- Block design
- Version: 20x32x12 mm



General technical data		
Method of measurement		Distance sensor
Measured variable		Displacement
Light type		red
Working range	[mm]	20 ... 80
Setting range, lower limit	[mm]	20
Setting range, upper limit	[mm]	80
Setting options		Teach-in Teach-in via electrical connection
Max. light spot	[mm]	5x5 mm at a sensing range of 60 mm
Switching status display		Yellow LED
Operating reserve display		Green LED
Resolution	[mm]	0.5
Type of mounting		Via through-holes
Conforms to		-

Electrical data		
Analogue output	[V]	0 ... 10
Switch output		PNP
Electrical connection	Plug	M8 x 1, 4-pin
	Cable	4-core
Cable length	[m]	2.0
Operating voltage range	[V DC]	15 ... 30
Residual ripple	[%]	10
Max. switching frequency	[Hz]	200
Max. output current	[mA]	100
Voltage drop	[V]	≤ 2.4
Idle current	[mA]	25
Protection against short circuit		Pulsed
Protection against polarity reversal		For all electrical connections
Protection class to EN 60 529		IP67
CE marking symbol (see conformity declaration)		As per EU EMC directive
Approval		c UL us - Listed (OL)

Materials	
Body	Acrylic butadiene styrene
Cable sheath	Polyurethane
Material note	Free of copper and PTFE

Distance sensors SOEG-RTD

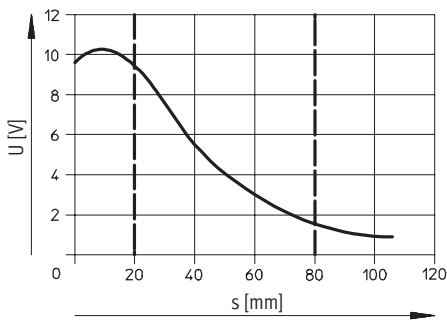
Technical data



Operating and environmental conditions		
Ambient temperature	[°C]	0 ... 60
Corrosion resistance class CRC ¹⁾		4 ²⁾ / 2 ³⁾

- Corrosion resistance class 2 according to Festo standard 940 070
Components requiring moderate corrosion resistance. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.
Corrosion resistance class 4 according to Festo standard 940 070
Components requiring higher corrosion resistance. Parts used with aggressive media, e.g. food or chemical industry. These applications should be supported with special tests with the media if required.
- Cable type
- Plug type

Response curve



s Distance
U Output voltage

Dimensions

Download CAD data → www.festo.com/en/engineering

Cable type

Plug type

1 Connecting cable

2 Plug suitable for plug socket with cable SIM-M8-...

3 Mounting holes

4 Teach-in

5 Receiver

6 Transmitter

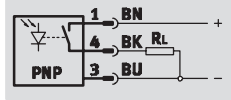
Ordering data

Version	Working range [mm]	Switch output	Electrical connection		Weight [g]	Part No.	Type
			Cable	Plug			
20x32x12 mm							
	20 ... 80	PNP	■	-	37	537 758	SOEG-RTD-Q20-PP-K-2L-TI
			-	■	7	537 757	SOEG-RTD-Q20-PP-S-2L-TI

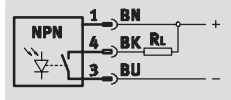
Retro-reflective sensors SOEG-RSP

Technical data

Function

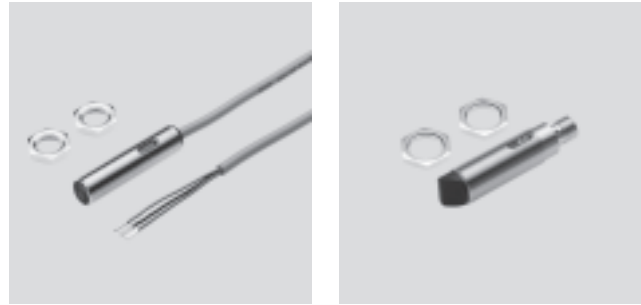


PNP, NO contact, e.g. with plug



NPN, NO contact, e.g. with plug

- Beam exit straight or angled
- Round design
- Variants: M12 und M18



General technical data			
Version	M12	M18, straight	M18, angled
Method of measurement	Retro-reflective sensor		
Measured variable	Position		
Light type	red polarised		
Working range [mm]	1,500	2,000	2,000
Setting options	-	-	-
Switching status display	Yellow LED		
Operating reserve display	Green LED		
Type of mounting	Via lock nut		
Tightening torque [Nm]	10	20	20
Conforms to	DIN EN 60947-5-2		

Electrical data	
Switch output	PNP or NPN
Switching element function	Dark switching
Electrical connection	Plug M12x1, 3-pin
	Cable 3-core
Cable length [m]	2.5
Operating voltage range [V DC]	10 ... 36
Residual ripple [%]	20
Max. switching frequency [Hz]	1,000
Response time [ms]	0.5
Max. output current [mA]	200
Voltage drop [V]	≤ 2.0
Idle current [mA]	15
Protection against short circuit	Pulsed
Protection against polarity reversal	For all electrical connections
Protection class to EN 60 529	IP65/IP67
CE marking symbol (see conformity declaration)	As per EU EMC directive

Materials	
Body	Nickel-plated brass
Union nut	Nickel-plated brass
Cable sheath	Polyurethane
Material note	Free of copper and PTFE

Retro-reflective sensors SOEG-RSP

Technical data



Operating and environmental conditions						
Version	M12		M18, straight		M18, angled	
Cable installation	fixed	flexible	fixed	flexible	fixed	flexible
Ambient temperature [°C]	-25 ... +55	-5 ... +55	-25 ... +55	-5 ... +55	-25 ... +55	-5 ... +55
Corrosion resistance class CRC ¹⁾	2		2		2	

1) Corrosion resistance class 2 according to Festo standard 940 070

Components requiring moderate corrosion resistance. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.

Dimensions Download CAD data → www.festo.com/en/engineering

M12

Cable type

1 Connecting cable 2 Light emitting diode (LED)

Plug type

3 Light exit 4 Plug suitable for plug socket with cable SIM-M12...

M18, beam exit straight

Cable type

1 Connecting cable 2 Light emitting diode (LED)

Plug type

3 Light exit 4 Plug suitable for plug socket with cable SIM-M12...

M18, beam exit lateral

Cable type

1 Connecting cable 2 Light emitting diode (LED)

Plug type

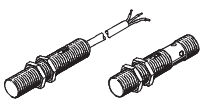
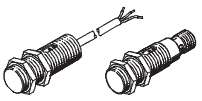
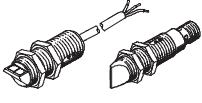
3 Light exit 4 Plug suitable for plug socket with cable SIM-M12...

Sensors and monitoring devices
Sen.S015
8.2

Retro-reflective sensors SOEG-RSP



Technical data

Ordering data							
Version	Working range [mm]	Switch output	Electrical connection		Weight [g]	Part No.	Type
			Cable	Plug			
M12							
	1,500	PNP	■	–	100	537 683	SOEG-RSP-M12-PS-K-2L
			–	■	20	537 684	SOEG-RSP-M12-PS-S-2L
		NPN	■	–	100	537 685	SOEG-RSP-M12-NS-K-2L
			–	■	20	537 686	SOEG-RSP-M12-NS-S-2L
M18, beam exit straight							
	2000	PNP	■	–	121	537 697	SOEG-RSP-M18-PS-K-2L
			–	■	53	537 699	SOEG-RSP-M18-PS-S-2L
		NPN	■	–	121	537 713	SOEG-RSP-M18-NS-K-2L
			–	■	53	537 715	SOEG-RSP-M18-NS-S-2L
M18, beam exit lateral							
	2000	PNP	■	–	125	537 698	SOEG-RSP-M18W-PS-K-2L
			–	■	56	537 700	SOEG-RSP-M18W-PS-S-2L
		NPN	■	–	125	537 714	SOEG-RSP-M18W-NS-K-2L
			–	■	56	537 716	SOEG-RSP-M18W-NS-S-2L

Sensors and monitoring devices
Sensors

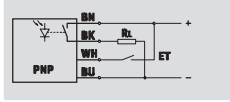
8.2

Retro-reflective sensors SOEG-RSP

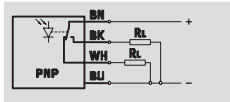
Technical data



Function



e.g. 20x32x12 mm
PNP, switchable, with cable



e.g. 50x50x17 mm,
PNP, antivalent, with cable

- Beam exit straight
- Block design
- Low-cost version without the teach-in and programming functionality available
- Variants: 20x32x12, 30x30x15 and 50x50x17 mm



General technical data				
Version	20x32x12 mm	20x32x12 mm ¹⁾	30x30x15 mm	50x50x17 mm
Method of measurement	Retro-reflective sensor			
Measured variable	Position			
Light type	red polarised			
Working range [mm]	0 ... 2,500 ²⁾	2,500	0 ... 2,000	0 ... 5,000 ¹⁾
Reference material	Reflector Ø 84 mm			
Setting range, lower limit [mm]	0	–	0	0
Setting range, upper limit [mm]	2,500	–	2,000	5,000
Setting options	Teach-in via electrical connection	–	Potentiometer	Potentiometer
Max. light spot [mm]	75x75 mm at a sensing range of 2 m		–	–
Ready status display	–		–	Green LED
Switching status display	Yellow LED			
Operating reserve display	Green LED		Green LED	Red LED ³⁾
Type of mounting	Via through-holes			
Conforms to	DIN EN 60947-5-2			

- 1) Low-cost version without the teach-in and programming functionality
- 2) Independent of the reflector used → Table
- 3) LED lights up when available operating reserve is insufficient

Working range ¹⁾			
Version	20x32x12 mm	30x30x15 mm	50x50x17 mm
Reflector, rectangular 10x50 mm	–	–	–
Reflector, round Ø 20 mm	1,200	800	1,200
Reflector, round Ø 40 mm	2,000	1,200	3,000
Reflector, square 50x50 mm	2,500	1,200	3,000
Reflector, round Ø 84 mm	2,500	2,000	5,500
Reflector foil, 100 x 100 mm	1,000	1,000	1,000

- 1) Reflectors → 4 / 8.2-63

Retro-reflective sensors SOEG-RSP

Technical data

Electrical data						
Version	20x32x12 mm		20x32x12 mm ¹⁾		30x30x15 mm	50x50x17 mm
Switch output	PNP or NPN					
Switching element function	Switchable		Switchable ²⁾		Dark switching	Antivalent
Electrical connection	Plug	M8 x 1, 4-pin			M8 x 1, 3-pin	M12x1, 4-pin
	Cable	4-core		–	3-core	4-core
Cable length	[m]	2.0		–	2.5	3.0
Operating voltage range	[V DC]	10 ... 30				
Residual ripple	[%]	10			20	10
Max. switching frequency	[Hz]	1,000		1,000		1,000
Max. output current	[mA]	100		200		200
Voltage drop	[V]	≤ 2.4		2.0		≤ 2.4
Idle current	[mA]	35		25	25	30
Protection against short circuit	Pulsed					
Protection against polarity reversal	For all electrical connections					
Protection class to EN 60 529	IP67			IP65		IP67
CE marking symbol (see conformity declaration)	As per EU EMC directive As per EU low voltage directive			As per EU EMC directive		As per EU EMC directive As per EU low voltage directive
Approval	c UL us - Listed (OL)			–		c UL us - Listed (OL)

- 1) Low-cost version without the teach-in and programming functionality
 2) By swapping the connections

Materials				
Version	20x32x12 mm		30x30x15 mm	50x50x17 mm
Body	Acrylic butadiene styrene		Polybutylene terephthalate, reinforced	Acrylic butadiene styrene
Cable sheath	Polyurethane			
Material note	Free of copper and PTFE			

Operating and environmental conditions						
Version	20x32x12 mm		30x30x15 mm		50x50x17 mm	
Cable installation	fixed	flexible	fixed	flexible	fixed	flexible
Ambient temperature	[°C]	–20 ... +60	–5 ... +60	–25 ... +55	–5 ... +55	–20 ... +60
Corrosion resistance class CRC ¹⁾	4 ²⁾ / 2 ³⁾		2		4	

- 1) Corrosion resistance class 2 according to Festo standard 940 070
 Components requiring moderate corrosion resistance. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.
 Corrosion resistance class 4 according to Festo standard 940 070
 Components requiring higher corrosion resistance. Parts used with aggressive media, e.g. food or chemical industry. These applications should be supported with special tests with the media if required.
- 2) Cable type
 3) Plug type

Retro-reflective sensors SOEG-RSP

Technical data

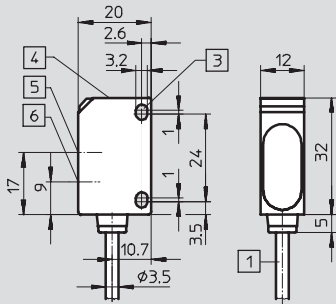


Dimensions

Download CAD data → www.festo.com/en/engineering

20x32x12 mm

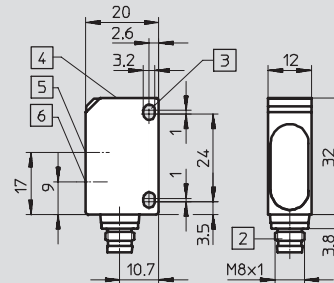
Cable type



1 Connecting cable

2 Plug suitable for plug socket with cable SIM-M8-...

Plug type



3 Mounting holes

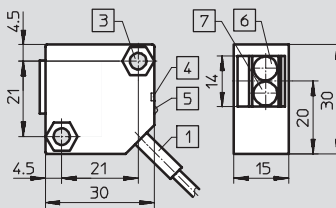
4 Teach-in

5 Receiver

6 Transmitter

30x30x15 mm

Cable type



1 Connecting cable

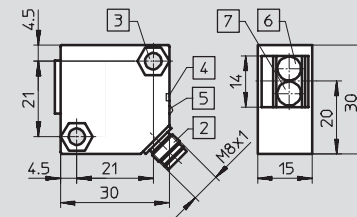
2 Plug suitable for plug socket with cable SIM-M8-...

3 Mounting holes

4 Potentiometer

5 Light emitting diode (LED)

Plug type

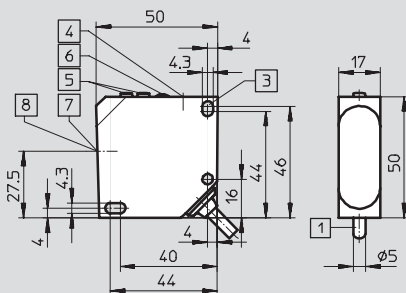


6 Receiver

7 Transmitter

50x50x17 mm

Cable type



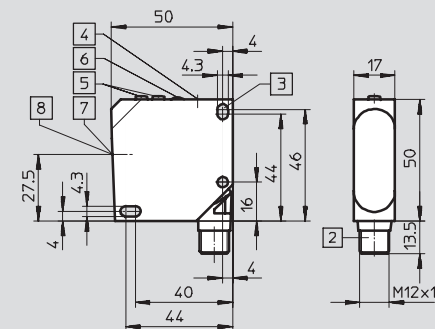
1 Connecting cable

2 Plug suitable for plug socket with cable SIM-M12-...

3 Mounting holes

4 Potentiometer

Plug type



5 Light emitting diode (LED)

6 Numerical display

7 Receiver

8 Transmitter

Retro-reflective sensors SOEG-RSP



Technical data

Ordering data							
Version	Working range [mm]	Switch output	Electrical connection		Weight [g]	Part No.	Type
			Cable	Plug			
20x32x12 mm							
	0 ... 2,500	PNP	■	–	37	537 750	SOEG-RSP-Q20-PP-K-2L-TI
			–	■	7	537 749	SOEG-RSP-Q20-PP-S-2L-TI
		PNP ¹⁾	–	■	10	537 784	SOEG-RSP-Q20-PS-S-2L ¹⁾
		NPN	■	–	37	537 752	SOEG-RSP-Q20-NP-K-2L-TI
			–	■	7	537 751	SOEG-RSP-Q20-NP-S-2L-TI
30x30x15 mm							
	0 ... 2,000	PNP	■	–	85	165 330	SOEG-RSP-Q30-PS-K-2L
			–	■	18	165 331	SOEG-RSP-Q30-PS-S-2L
		NPN	■	–	85	165 328	SOEG-RSP-Q30-NS-K-2L
			–	■	18	165 329	SOEG-RSP-Q30-NS-S-2L
50x50x17 mm							
	0 ... 5,500	PNP	■	–	122	537 763	SOEG-RSP-Q50-PA-K-3L
			–	■	32	537 765	SOEG-RSP-Q50-PA-S-3L
		NPN	■	–	122	537 764	SOEG-RSP-Q50-NA-K-3L
			–	■	32	537 766	SOEG-RSP-Q50-NA-S-3L

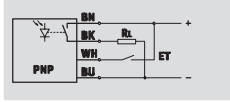
1) Low-cost version without the teach-in and programming functionality

Retro-reflective sensors SOEG-RSG

Technical data



Function



PNP, switchable, with cable

- For transparent objects
- Autocollimation principle
- Beam exit straight
- Block design
- Version: 20x32x12 mm



General technical data	
Method of measurement	Retro-reflective sensor for transparent objects
Measured variable	Position
Light type	red polarised
Working range [mm]	5 ... 500
Reference material	Laser reflector 51x51 mm
Setting range, lower limit [mm]	5
Setting range, upper limit [mm]	500
Setting options	Teach-in Teach-in via electrical connection
Max. light spot [mm]	20x20 mm at a sensing range of 500 mm
Ready status display	-
Switching status display	Yellow LED
Operating reserve display	Green LED
Type of mounting	Via through-holes
Conforms to	DIN EN 60947-5-2

Electrical data	
Switch output	PNP
Switching element function	Switchable
Electrical connection Cable	4-core
Cable length [m]	2.0
Operating voltage range [V DC]	10 ... 30
Residual ripple [%]	10
Max. switching frequency [Hz]	1,000
Max. output current [mA]	100
Voltage drop [V]	≤ 2.4
Idle current [mA]	25
Protection against short circuit	Pulsed
Protection against polarity reversal	For all electrical connections
Protection class to EN 60 529	IP67
CE marking symbol (see conformity declaration)	As per EU EMC directive As per EU low voltage directive
Approval	c UL us - Listed (OL)

Materials	
Body	Acrylic butadiene styrene
Cable sheath	Polyurethane
Material note	Free of copper and PTFE

Retro-reflective sensors SOEG-RSG

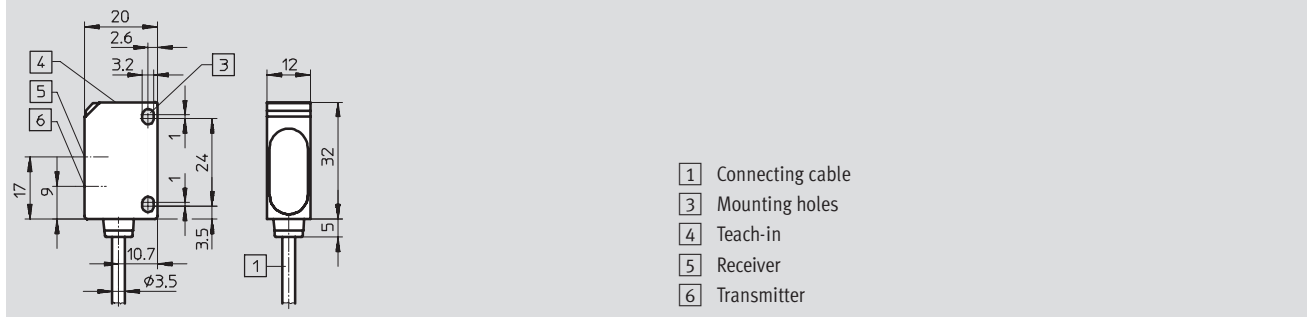



Technical data

Operating and environmental conditions		
Cable installation	fixed	flexible
Ambient temperature [°C]	-20 ... +60	-5 ... +60
Corrosion resistance class CRC ¹⁾	4 ²⁾ / 2 ³⁾	

- 1) Corrosion resistance class 2 according to Festo standard 940 070
 Components requiring moderate corrosion resistance. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.
 Corrosion resistance class 4 according to Festo standard 940 070
 Components requiring higher corrosion resistance. Parts used with aggressive media, e.g. food or chemical industry. These applications should be supported with special tests with the media if required.
- 2) Cable type
- 3) Plug type

Dimensions Download CAD data → www.festo.com/en/engineering



Ordering data						
Version	Working range [mm]	Switch output	Electrical connection		Weight [g]	Part No. Type
			Cable	Plug		
20x32x12 mm						
	5 ... 500	PNP	■	-	40	537 754 SOEG-RSG-Q20-PP-K-2L-TI

Sensors and monitoring devices
Sensors
8.2

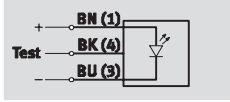
Through-beam sensors SOEG-S/E

Technical data

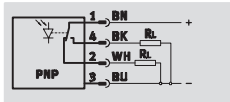


Function

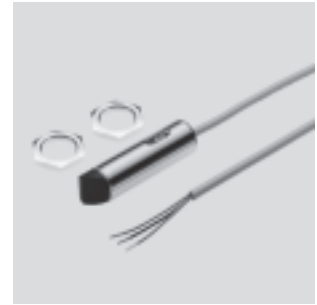
- Beam exit straight or angled
- Round design
- Version: M18



Transmitter



Receiver, e.g. PNP, antivalent, with plug



General technical data	
Method of measurement	Through-beam sensor
Measured variable	Position
Light type	red
Working range [mm]	20,000
Setting options	–
Switching status display	Yellow LED
Operating reserve display	Green LED
Type of mounting	Via lock nut
Tightening torque [Nm]	20
Conforms to	DIN EN 60947-5-2

Electrical data		
Switch output	PNP or NPN	
Switching element function	Antivalent	
Electrical connection	Plug	M12x1, 3-pin ¹⁾ or 4-pin ²⁾
	Cable	3-core
Cable length [m]	2.5	
Operating voltage range [V DC]	10 ... 36	
Residual ripple [%]	20	
Max. switching frequency ²⁾ [Hz]	1,000	
Max. output current ²⁾ [mA]	200	
Voltage drop [V]	≤ 2.0	
Idle current [mA]	15 ¹⁾ / 10 ²⁾	
Protection against short circuit	Pulsed	
Protection against polarity reversal	For all electrical connections	
Protection class to EN 60 529	IP65/IP67	
CE marking symbol (see conformity declaration)	As per EU EMC directive	

1) at the transmitter
2) at the receiver

Materials	
Body	Nickel-plated brass
Union nut	Nickel-plated brass
Cable sheath	Polyurethane
Material note	Free of copper and PTFE

Through-beam sensors SOEG-S/E

Technical data



Operating and environmental conditions		
Cable installation	fixed	flexible
Ambient temperature [°C]	-25 ... +55	-5 ... +55
Corrosion resistance class CRC ¹⁾	2	

1) Corrosion resistance class 2 according to Festo standard 940 070
 Components requiring moderate corrosion resistance. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.

Dimensions Download CAD data → www.festo.com/en/engineering

M18, beam exit straight

Cable type Plug type

1 Connecting cable 2 Light emitting diode (LED)

3 Light exit 4 Plug suitable for plug socket with cable SIM-M12...

M18, beam exit lateral

Cable type Plug type

1 Connecting cable 2 Light emitting diode (LED)

3 Light exit 4 Plug suitable for plug socket with cable SIM-M12...

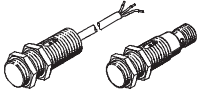
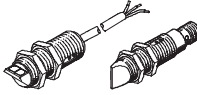
Sensors and monitoring devices
Sensors

8.2

Through-beam sensors SOEG-S/E

Technical data



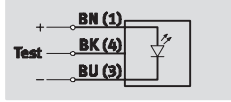
Ordering data							
Version	Working range [mm]	Switch output	Electrical connection		Weights [g]	Part No. Type	
			Cable	Plug			
M18, beam exit straight							
	Transmitter						
	20,000	-	■	-	115	537 691	SOEG-S-M18-K-L
			-	■	40	537 703	SOEG-S-M18-S-L
	Receiver						
	20,000	PNP	■	-	115	537 692	SOEG-E-M18-PA-K-2L
			-	■	40	537 704	SOEG-E-M18-PA-S-2L
NPN		■	-	115	537 709	SOEG-E-M18-NA-K-2L	
		-	■	40	537 711	SOEG-E-M18-NA-S-2L	
M18, beam exit lateral							
	Transmitter						
	20,000	-	■	-	124	537 693	SOEG-S-M18W-K-L
			-	■	57	537 695	SOEG-S-M18W-S-L
	Receiver						
	20,000	PNP	■	-	124	537 694	SOEG-E-M18W-PA-K-2L
			-	■	57	537 696	SOEG-E-M18W-PA-S-2L
NPN		■	-	124	537 710	SOEG-E-M18W-NA-K-2L	
		-	■	57	537 712	SOEG-E-M18W-NA-S-2L	

Through-beam sensors SOEG-S/E

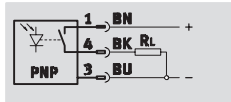
Technical data



Function

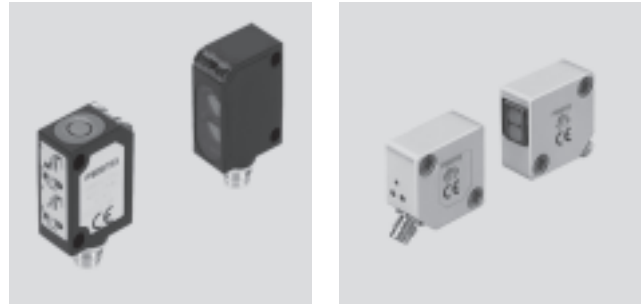


e.g. 30x30x15 mm, transmitter



e.g. 30x30x15 mm,
Receiver, PNP, with plug

- Beam exit straight
- Block design
- Transmitter with test input
- Variants: 20x32x12, 30x30x15 and 50x50x17 mm



General technical data			
Version	20x32x12 mm	30x30x15 mm	50x50x17 mm
Method of measurement	Through-beam sensor		
Measured variable	Position		
Light type	red	infra-red	infra-red
Working range [mm]	0 ... 6,000	0 ... 6,000	0 ... 15,000
Setting options	Teach-in Teach-in via electrical connection	Potentiometer	Potentiometer
Ready status display	–	–	Green LED
Switching status display	Yellow LED		
Operating reserve display	Green LED	Green LED	Red LED ¹⁾
Type of mounting	Via through-holes		
Conforms to	DIN EN 60947-5-2		

1) LED lights up when available operating reserve is insufficient

Electrical data			
Version	20x32x12 mm	30x30x15 mm	50x50x17 mm
Switch output	PNP or NPN		
Switching element function	Switchable	Dark switching	Antivalent
Electrical connection	Plug	M8 x 1, 4-pin	M12x1, 4-pin
	Cable	4-core	3-core
Cable length [m]	2.0	2.5	3.0
Operating voltage range [V DC]	10 ... 30		
Residual ripple [%]	10	20	10
Max. switching frequency [Hz]	500	1,000	1,000
Max. output current ¹⁾ [mA]	100	200	200
Voltage drop [V]	≤ 2.4	2.0	≤ 2.4
Idle current [mA]	20	25 ¹⁾ / 30 ²⁾	30
Protection against short circuit	Pulsed		
Protection against polarity reversal	For all electrical connections		
Protection class to EN 60 529	IP67	IP65	IP67
CE marking symbol (see conformity declaration)	As per EU EMC directive	As per EU EMC directive	As per EU EMC directive
	As per EU low voltage directive	As per EU low voltage directive	As per EU low voltage directive
Approval	c UL us - Listed (OL)	–	c UL us - Listed (OL)

1) at the transmitter
2) at the receiver

Through-beam sensors SOEG-S/E

Technical data



Materials			
Version	20x32x12 mm	30x30x15 mm	50x50x17 mm
Body	Acrylic butadiene styrene	Polybutylene terephthalate, reinforced	Acrylic butadiene styrene
Cable sheath	Polyurethane		
Material note	Free of copper and PTFE		

Operating and environmental conditions						
Version	20x32x12 mm		30x30x15 mm		50x50x17 mm	
Cable installation	fixed	flexible	fixed	flexible	fixed	flexible
Ambient temperature [°C]	-20 ... +60	-5 ... +60	-25 ... +55	-5 ... +55	-20 ... +60	-5 ... +60
Corrosion resistance class CRC ¹⁾	4 ²⁾ / 2 ³⁾		2		4	

- 1) Corrosion resistance class 2 according to Festo standard 940 070
 Components requiring moderate corrosion resistance. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.
 Corrosion resistance class 4 according to Festo standard 940 070
 Components requiring higher corrosion resistance. Parts used with aggressive media, e.g. food or chemical industry. These applications should be supported with special tests with the media if required.
- 2) Cable type
 3) Plug type

Sensors and monitoring devices
Sensors

8.2

Dimensions Download CAD data → www.festo.com/en/engineering

20x32x12 mm

Cable type Plug type

1 Connecting cable 2 Plug suitable for plug socket with cable SIM-M8-... 3 Mounting holes 5 Receiver
 4 Teach-in 6 Transmitter

30x30x15 mm

Cable type Plug type

1 Connecting cable 2 Plug suitable for plug socket with cable SIM-M8-... 3 Mounting holes 4 Potentiometer 5 Light emitting diode (LED)
 6 Receiver (SOEG-E-...) 7 Transmitter (SOEG-S-...)

Through-beam sensors SOEG-S/E

Technical data



Dimensions Download CAD data → www.festo.com/en/engineering

50x50x17 mm

Cable type Plug type

1 Connecting cable
 2 Plug suitable for plug socket with cable SIM-M12-...
 3 Mounting holes
 4 Potentiometer
 5 Light emitting diode (LED)
 6 Numerical display
 7 Receiver (SOEG-E-...)
 8 Transmitter (SOEG-S-...)

Ordering data							
Version	Working range [mm]	Switch output	Electrical connection		Weight [g]	Part No.	Type
			Cable	Plug			
20x32x12 mm							
	Transmitter						
	0 ... 6,000	-	■	-	37	537 744	SOEG-S-Q20-K-L-TI
			-	■	7	537 743	SOEG-S-Q20-S-L-TI
	Receiver						
	0 ... 6,000	PNP	■	-	37	537 746	SOEG-E-Q20-PP-K-2L-TI
			-	■	7	537 745	SOEG-E-Q20-PP-S-2L-TI
NPN		■	-	37	537 748	SOEG-E-Q20-NP-K-2L-TI	
		-	■	7	537 747	SOEG-E-Q20-NP-S-2L-TI	
30x30x15 mm							
	Transmitter						
	0 ... 6,000	-	■	-	85	165 352	SOEG-S-Q30-K-L
			-	■	18	165 353	SOEG-S-Q30-S-L
	Receiver						
	0 ... 6,000	PNP	■	-	85	165 322	SOEG-E-Q30-PS-K-2L
			-	■	18	165 323	SOEG-E-Q30-PS-S-2L
NPN		■	-	85	165 320	SOEG-E-Q30-NS-K-2L	
		-	■	18	165 321	SOEG-E-Q30-NS-S-2L	
50x50x17 mm							
	Transmitter						
	0 ... 15,000	-	■	-	121	537 779	SOEG-S-Q50-K-L
			-	■	31	537 780	SOEG-E-Q50-PA-K-3L
	Receiver						
	0 ... 15,000	PNP	■	-	121	537 781	SOEG-S-Q50-S-L
			-	■	31	537 782	SOEG-E-Q50-PA-S-3L

Sensors and monitoring devices
Sensors

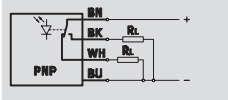
8.2

Fibre-optic units SOEG-L

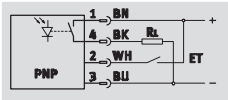
Technical data



Function



e.g. 30x30x15 mm
PNP, NO contact, with plug



e.g. 20x32x12 mm
PNP, switchable, with plug

- For polymer and glass fibre optic cable
- Beam exit straight
- Block design
- Variants: 20x32x12 and 30x30x15 mm



General technical data		
Version	20x32x12 mm	30x30x15 mm
Method of measurement	Fibre-optic unit	
Measured variable	Position	
Light type	red	
Working range [mm]	0 ... 250 ¹⁾	0 ... 400 ²⁾
Setting range, lower limit [mm]	0	0
Setting range, upper limit [mm]	100 ... 250 ¹⁾	100 ... 400 ²⁾
Setting options	Teach-in Teach-in via electrical connection	Potentiometer
Switching status display	Yellow LED	
Operating reserve display	Green LED	
Type of mounting	Via through-holes	
Conforms to	DIN EN 60947-5-2	

1) depending on the fibre optic cable used → 4 / 8.2-49:
 100 mm at SOEZ-LLG-RT-0,5-M6 and SOEZ-LLK-RT-2,0-M6
 150 mm at SOEZ-LLG-SE-0,5-M4
 250 mm at SOEZ-LLK-SE-2,0-M4

2) depending on the fibre optic cable used → 4 / 8.2-49:
 100 mm at SOEZ-LLG-RT-0,5-M6
 120 mm at SOEZ-LLK-RT-2,0-M6
 280 mm at SOEZ-LLG-SE-0,5-M4
 400 mm at SOEZ-LLK-SE-2,0-M4

Electrical data		
Version	20x32x12 mm	30x30x15 mm
Switch output	PNP or NPN	
Switching element function	Switchable	Antivalent
Electrical connection	Plug	M8 x 1, 4-pin
	Cable	4-core
Cable length [m]	2.0	2.5
Operating voltage range [V DC]	10 ... 30	
Residual ripple [%]	10	20
Max. switching frequency [Hz]	1,000	1,000
Max. output current ¹⁾ [mA]	100	200
Voltage drop [V]	≤ 2.4	2.0
Idle current [mA]	25	25
Protection against short circuit	Pulsed	
Protection against polarity reversal	For all electrical connections	
Protection class to EN 60 529	IP67	IP65
CE marking symbol (see conformity declaration)	As per EU EMC directive As per EU low voltage directive	As per EU EMC directive
Approval	c UL us - Listed (OL)	-

Fibre-optic units SOEG-L

Technical data



Materials		
Version	20x32x12 mm	30x30x15 mm
Body	Acrylic butadiene styrene	Polybutylene terephthalate, reinforced
Cable sheath	Polyurethane	
Material note	Free of copper and PTFE	

Operating and environmental conditions				
Version	20x32x12 mm		30x30x15 mm	
Cable installation	fixed	flexible	fixed	flexible
Ambient temperature [°C]	0 ... +60	0 ... +60	-25 ... +55	-5 ... +55
Corrosion resistance class CRC ¹⁾	4 ²⁾ / 2 ³⁾		2	

- 1) Corrosion resistance class 2 according to Festo standard 940 070
 Components requiring moderate corrosion resistance. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.
 Corrosion resistance class 4 according to Festo standard 940 070
 Components requiring higher corrosion resistance. Parts used with aggressive media, e.g. food or chemical industry. These applications should be supported with special tests with the media if required.
- 2) Cable type
 3) Plug type

Dimensions Download CAD data → www.festo.com/en/engineering

20x32x12 mm

Cable type

1 Connecting cable
 2 Plug suitable for plug socket with cable SIM-M8-...
 3 Mounting holes
 4 Teach-in
 5 Receiver
 6 Transmitter
 7 Mounting holes for fibre optic cable

Plug type

1 Connecting cable
 2 Plug suitable for plug socket with cable SIM-M8-...
 3 Mounting holes
 4 Teach-in
 5 Receiver
 6 Transmitter
 7 Mounting holes for fibre optic cable

30x30x15 mm

Cable type

1 Connecting cable
 2 Plug suitable for plug socket with cable SIM-M8-...
 3 Mounting holes
 4 Potentiometer
 5 Light emitting diode (LED)
 6 Receiver
 7 Transmitter

Plug type

1 Connecting cable
 2 Plug suitable for plug socket with cable SIM-M8-...
 3 Mounting holes
 4 Potentiometer
 5 Light emitting diode (LED)
 6 Receiver
 7 Transmitter

Fibre-optic units SOEG-L

Technical data



Ordering data							
Version	Working range [mm]	Switch output	Electrical connection		Weight [g]	Part No.	Type
			Cable	Plug			
20x32x12 mm							
	0 ... 250	PNP	■	-	37	537 740	SOEG-L-Q20-PP-K-2L-TI
			-	■	8	537 739	SOEG-L-Q20-PP-S-2L-TI
		NPN	■	-	37	537 742	SOEG-L-Q20-NP-K-2L-TI
			-	■	8	537 741	SOEG-L-Q20-NP-S-2L-TI
30x30x15 mm							
	0 ... 120	PNP	■	-	88	165 326	SOEG-L-Q30-P-A-K-2L
			-	■	18	165 327	SOEG-L-Q30-P-A-S-2L
		NPN	■	-	88	165 324	SOEG-L-Q30-NA-K-2L
			-	■	18	165 325	SOEG-L-Q30-NA-S-2L

Fibre-optic units SOEG-L

Accessories



Polymer fibre optic cable LLK,
Glass fibre optic cable LLG



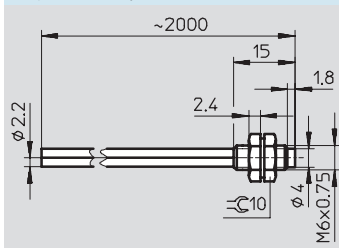
General technical data			
Type		Polymer fibre optic cable LLK	Glass fibre optic cable LLG
Setting range, upper limit			
Use	Diffuse sensor	[mm] 100 ¹⁾ / 120 ²⁾	100 ¹⁾ / 100 ²⁾
	Through-beam sensor	[mm] 250 ¹⁾ / 400 ²⁾	150 ¹⁾ / 280 ²⁾
Min. bending radius	[mm]	25	25
Temperature range		[°C] -40 ... +70	-20 ... +160 (fixed)
			-20 ... +120 (flexible)

- 1) with SOEG-L-Q20
- 2) with SOEG-L-Q30

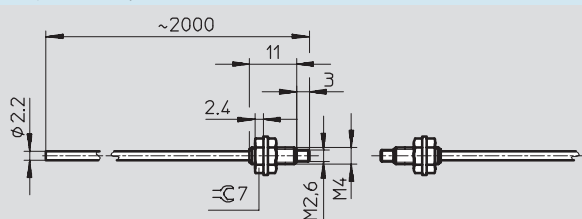
Materials		
Type	Polymer fibre optic cable LLK	Glass fibre optic cable LLG
Fibre optics	Polymethylmethacrylate	Glass fibre
Sheath	Polyethylene	Brass, chrome-plated
Probe	Brass, nickel-plated	Brass, nickel-plated

Dimensions Download CAD data → www.festo.com/en/engineering

Polymer fibre optic cable LLK, used as a diffuse sensor



Polymer fibre optic cable LLK, used as a through-beam sensor



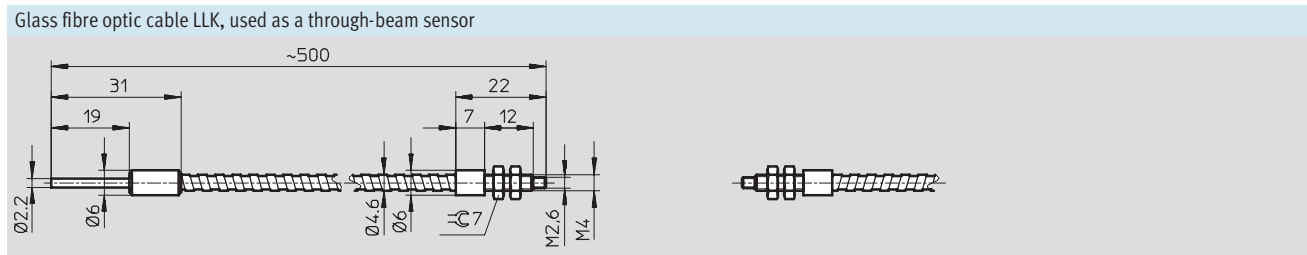
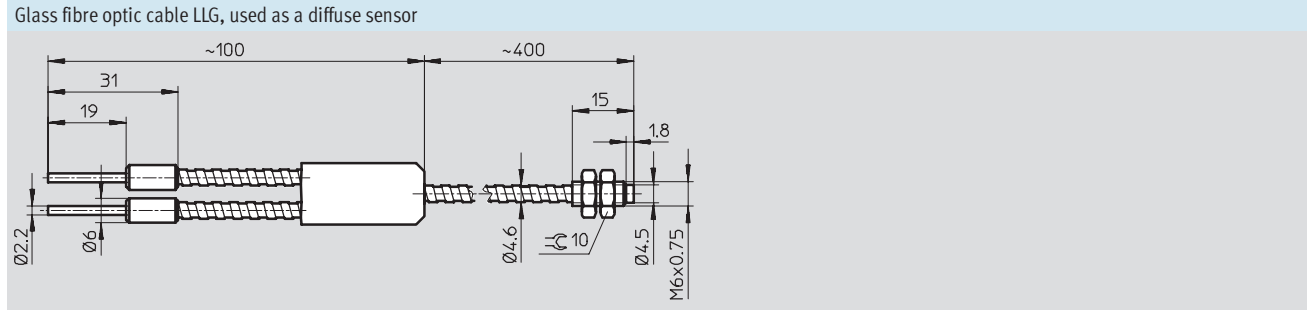
Fibre-optic units SOEG-L

Accessories



Sensors and monitoring devices
Sensors
8.2

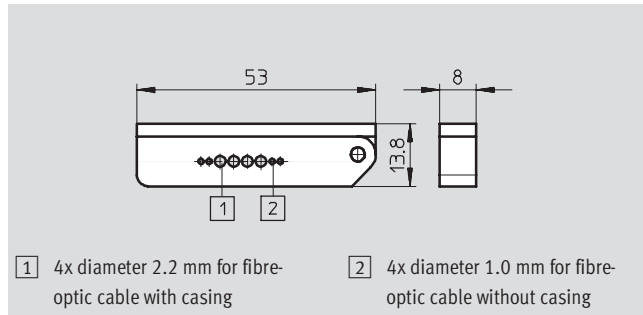
Dimensions Download CAD data → www.festo.com/en/engineering



Ordering data						
Version	Description	Length [m]	Weight [g]	Free of copper and PTFE	Part No.	Type
Polymer fibre optic cable LLK						
	Diffuse sensor	2	20	-	165 358	SOEZ-LLK-RT-2,0-M6
	Through-beam sensor	2	20	-	165 360	SOEZ-LLK-SE-2,0-M4
Glass fibre optic cable LLG						
	Diffuse sensor	0.5	50	-	165 356	SOEZ-LLG-RT-0,5-M6
	Through-beam sensor	0.5	50	-	165 357	SOEZ-LLG-SE-0,5-M4

Fibre-optic cutter for polymer fibre optic cable

The fibre optic cable is guided within the cutter to ensure a clean cut surface at a right angle to the conductor surface, thus keeping light losses to a minimum.



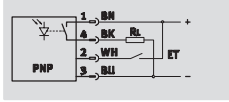
Note
In order to obtain the highest-quality cuts, each hole should be used only once.

Ordering data		
	Part No.	Type
Fibre-optic cutter for polymer fibre optic cable	36 479	SOE-LKS

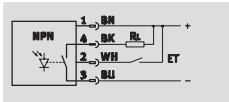
Laser diffuse sensors SOEL-RT

Technical data

Function

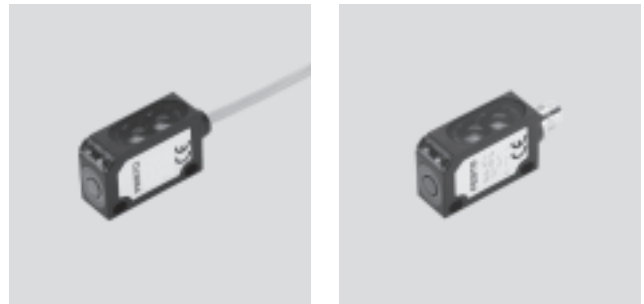


PNP, switchable, e.g. with plug



NPN, switchable, e.g. with plug

- With laser light
- Beam exit straight
- Block design
- Version: 20x32x12 mm



General technical data	
Method of measurement	Diffuse sensor
Measured variable	Position
Light type	Laser, red
Laser protection class	2
Working range	[mm] 10 ... 150
Setting range, lower limit	[mm] 10
Setting range, upper limit	[mm] 150
Setting options	Teach-in Teach-in via electrical connection
Max. light spot	[mm] 0.7 mm in focus
Switching status display	Yellow LED
Operating reserve display	Green LED
Type of mounting	Via through-holes
Conforms to	DIN EN 60947-5-2

Electrical data		
Switch output	PNP or NPN	
Switching element function	Switchable	
Electrical connection	Plug	M8 x 1, 4-pin
	Cable	4-core
Cable length	[m] 2.0	
Operating voltage range	[V DC] 10 ... 30	
Residual ripple	[%] 10	
Max. switching frequency	[Hz] 1,000	
Max. output current	[mA] 100	
Voltage drop	[V] ≤ 2.4	
Idle current	[mA] 25	
Protection against short circuit	Pulsed	
Protection against polarity reversal	For all electrical connections	
Protection class to EN 60 529	IP67	
CE marking symbol (see conformity declaration)	As per EU EMC directive	
	As per EU low voltage directive	
Approval	c UL us - Listed (OL)	

Laser diffuse sensors SOEL-RT

Technical data



Materials	
Body	Acrylic butadiene styrene
Cable sheath	Polyurethane
Material note	Free of copper and PTFE

Operating and environmental conditions		
Cable installation	fixed	flexible
Ambient temperature [°C]	-20 ... +60	-5 ... +60
Corrosion resistance class CRC ¹⁾	4 ²⁾ / 2 ³⁾	

- 1) Corrosion resistance class 2 according to Festo standard 940 070
Components requiring moderate corrosion resistance. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.
Corrosion resistance class 4 according to Festo standard 940 070
Components requiring higher corrosion resistance. Parts used with aggressive media, e.g. food or chemical industry. These applications should be supported with special tests with the media if required.
- 2) Cable type
- 3) Plug type

Dimensions Download CAD data → www.festo.com/en/engineering

Cable type

Plug type

1) Connecting cable

2) Plug suitable for plug socket with cable SIM-M8-...

3) Mounting holes

4) Teach-in

5) Receiver

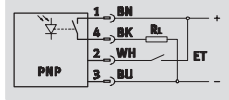
6) Transmitter

Ordering data							
Version	Working range [mm]	Switch output	Electrical connection		Weight [g]	Part No.	Type
			Cable	Plug			
20x32x12 mm							
	10 ... 150	PNP	■	-	36	537 736	SOEL-RT-Q20-PP-K-2L-TI
			-	■	8	537 735	SOEL-RT-Q20-PP-S-2L-TI
		NPN	■	-	36	537 738	SOEL-RT-Q20-NP-K-2L-TI
			-	■	8	537 737	SOEL-RT-Q20-NP-S-2L-TI

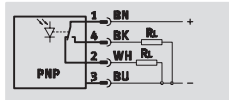
Laser diffuse sensors SOEL-RTH

Technical data

Function



e.g. 20x32x12 mm
PNP, switchable, with plug



e.g. 50x50x17 mm,
PNP, antivalent, with plug

- With laser light
- With background suppression
- Beam exit straight
- Block design
- Variants: 20x32x12 and 50x50x17 mm



General technical data		
Version	20x32x12 mm	50x50x17 mm
Method of measurement	Laser diffuse sensor with background suppression	
Measured variable	Position	
Light type	Laser, red	
Laser protection class	2	
Working range [mm]	30 ... 110	50 ... 300
Reference material	18%	
Setting range, lower limit [mm]	30	50
Setting range, upper limit [mm]	110	300
Setting options	Teach-in Teach-in via electrical connection	Potentiometer
Max. light spot [mm]	0.7 mm in focus	–
Ready status display	–	Green LED
Switching status display	Yellow LED	
Operating reserve display	Green LED	Red LED ¹⁾
Type of mounting	Via through-holes	
Conforms to	DIN EN 60947-5-2	

1) LED lights up when available operating reserve is insufficient

Electrical data		
Version	20x32x12 mm	50x50x17 mm
Switch output	PNP or NPN	
Switching element function	Switchable	Antivalent
Electrical connection	Plug	M8 x 1, 4-pin
	Cable	4-core
Cable length [m]	2.0	3.0
Operating voltage range [V DC]	10 ... 30	
Residual ripple [%]	10	
Max. switching frequency [Hz]	1,000	2,500
Max. output current [mA]	100	200
Voltage drop [V]	≤ 2.4	
Idle current [mA]	30	50
Protection against short circuit	Pulsed	
Protection against polarity reversal	For all electrical connections	
Protection class to EN 60 529	IP67	
CE marking symbol (see conformity declaration)	As per EU EMC directive	
	As per EU low voltage directive	
Approval	c UL us - Listed (OL)	

Laser diffuse sensors SOEL-RTH

Technical data



Materials		
Version	20x32x12 mm	50x50x17 mm
Body	Acrylic butadiene styrene	
Cable sheath	Polyurethane	
Material note	Free of copper and PTFE	

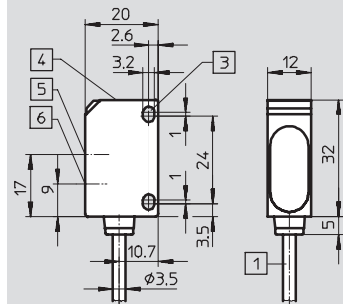
Operating and environmental conditions				
Version	20x32x12 mm	50x50x17 mm		
Cable installation	fixed	flexible	fixed	flexible
Ambient temperature [°C]	-20 ... +60	-5 ... +60	-20 ... +45	-5 ... +45
Corrosion resistance class CRC ¹⁾	4 ²⁾ / 2 ³⁾		4	

- 1) Corrosion resistance class 2 according to Festo standard 940 070
 Components requiring moderate corrosion resistance. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.
 Corrosion resistance class 4 according to Festo standard 940 070
 Components requiring higher corrosion resistance. Parts used with aggressive media, e.g. food or chemical industry. These applications should be supported with special tests with the media if required.
- 2) Cable type
 3) Plug type

Dimensions Download CAD data → www.festo.com/en/engineering

20x32x12 mm

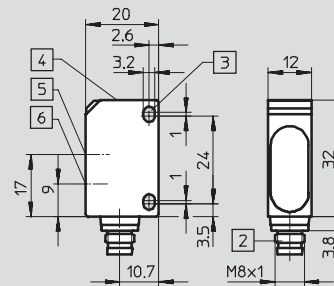
Cable type



1 Connecting cable

2 Plug suitable for plug socket with cable SIM-M8-...

Plug type



3 Mounting holes

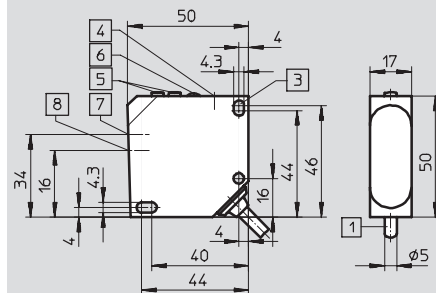
4 Teach-in

5 Receiver

6 Transmitter

50x50x17 mm

Cable type



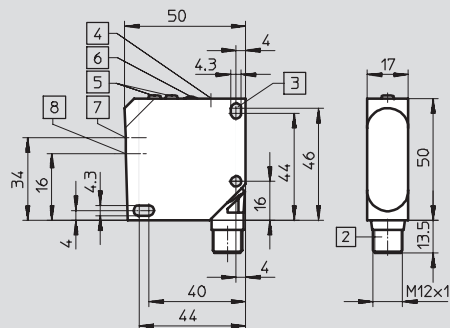
1 Connecting cable

2 Plug suitable for plug socket with cable SIM-M12-...

3 Mounting holes

4 Potentiometer

Plug type



5 Light emitting diode (LED)

6 Numerical display

7 Receiver

8 Transmitter

Laser diffuse sensors SOEL-RTH

Technical data



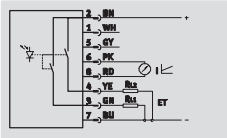
Ordering data							
Version	Working range [mm]	Switch output	Electrical connection		Weight [g]	Part No.	Type
			Cable	Plug			
20x32x12 mm							
	30 ... 110	PNP	■	–	36	537 729	SOEL-RTH-Q20-PP-K-2L-TI
			–	■	7	537 727	SOEL-RTH-Q20-PP-S-2L-TI
		NPN	■	–	36	537 730	SOEL-RTH-Q20-NP-K-2L-TI
			–	■	7	537 728	SOEL-RTH-Q20-NP-S-2L-TI
50x50x17 mm							
	50 ... 300	PNP	■	–	122	537 777	SOEL-RTH-Q50-PA-K-3L
			–	■	32	537 775	SOEL-RTH-Q50-PA-S-3L
		NPN	■	–	122	537 778	SOEL-RTH-Q50-NA-K-3L
			–	■	32	537 776	SOEL-RTH-Q50-NA-S-3L

Laser distance sensors SOEL-RTD

Technical data



Function



- With laser light
- Sensor for distance measurement
- Beam exit straight
- Block design
- Version: 50x50x17 mm



Analogue output

General technical data	
Method of measurement	Distance sensor
Measured variable	Displacement
Light type	Laser, red
Laser protection class	2
Working range [mm]	80 ... 300
Reference material	18%
Setting range, lower limit [mm]	80
Setting range, upper limit [mm]	300
Setting options	Teach-in Teach-in via electrical connection
Max. light spot [mm]	2x4
Resolution [mm]	0.3
Ready status display	Green LED
Switching status display	Yellow LED
Operating reserve display	Green LED
Type of mounting	Via through-holes

Electrical data	
Analogue output [mA]	4 ... 20
Switch output	Switchable
Electrical connection Plug	M1 2x1, 8-pin
Operating voltage range [V DC]	16 ... 30
Residual ripple [%]	10
Max. switching frequency [Hz]	1,000
Max. output current [mA]	100
Voltage drop [V]	≤ 2.4
Idle current [mA]	40
Protection against short circuit	Pulsed
Protection against polarity reversal	For all electrical connections
Protection class to EN 60 529	IP67
CE marking symbol (see conformity declaration)	As per EU EMC directive As per EU low voltage directive
Approval	c UL us - Listed (OL)

Materials	
Body	Acrylic butadiene styrene
Material note	Free of copper and PTFE

Laser distance sensors SOEL-RTD

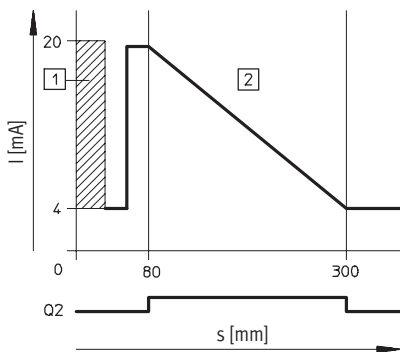
Technical data



Operating and environmental conditions		
Ambient temperature	[°C]	-10 ... +55
Corrosion resistance class CRC ¹⁾		4

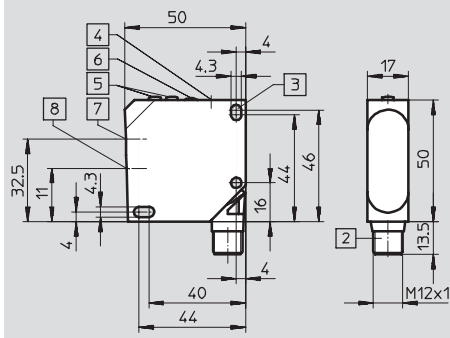
1) Corrosion resistance class 4 according to Festo standard 940 070
 Components requiring higher corrosion resistance. Parts used with aggressive media, e.g. food or chemical industry. These applications should be supported with special tests with the media if required.

Response curve (delivery condition)

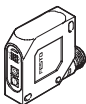


- s Distance
- I Output current
- Q2 Digital output
- 1 Undefined range
- 2 Operating range

Dimensions Download CAD data → www.festo.com/en/engineering



- 2 Plug suitable for plug socket with cable SIM-M12-...
- 3 Mounting holes
- 4 Teach-in
- 5 Light emitting diode (LED)
- 6 Light emitting diode (LED)
- 7 Receiver
- 8 Transmitter

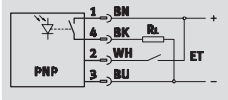
Ordering data						
Version	Working range [mm]	Switch output	Electrical connection		Weight [g]	Part No. Type
			Cable	Plug		
50x50x17 mm						
	80 ... 300	PNP	-	■	42	537 823 SOEL-RTD-Q50-PP-S-7L

Laser retro-reflective sensors SOEL-RSP

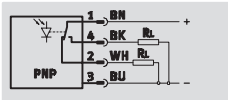
Technical data



Function



e.g. 20x32x12 mm
PNP, switchable, with plug



e.g. 50x50x17 mm,
PNP, antivalent, with plug

- With laser light
- Beam exit straight
- Block design
- Variants: 20x32x12 and 50x50x17 mm



General technical data		
Version	20x32x12 mm	50x50x17 mm
Method of measurement	Retro-reflective sensor	
Measured variable	Position	
Light type	Laser, red polarised	
Laser protection class	2	
Working range [mm]	100 ... 1,000 ¹⁾	0 ... 12,000 ¹⁾
Reference material	Laser reflector 51x51 mm	Reflector Ø 84 mm
Setting range, lower limit [mm]	100	0
Setting range, upper limit [mm]	1,000	12,000
Setting options	Teach-in via electrical connection	Potentiometer
Max. light spot [mm]	1 mm at a sensing range of 300 mm	15 mm at a sensing range of 8 mm
Ready status display	–	Green LED
Switching status display	Yellow LED	
Operating reserve display	Green LED	Red LED ²⁾
Type of mounting	Via through-holes	
Conforms to	DIN EN 60947-5-2	

- 1) independent of the reflector used → Table below
2) LED lights up when available operating reserve is insufficient

Working range ¹⁾		
Version	20x32x12 mm	50x50x17 mm
Reflector, rectangular 10x50 mm	10 ... 1,000	5,000
Reflector, round Ø 20 mm	2,500 ²⁾	6,000 ³⁾
Reflector, round Ø 40 mm	2,500 ²⁾	12,000 ³⁾
Reflector, square 50x50 mm	10 ... 1,000	12,000 ³⁾
Reflector, round Ø 84 mm	2,500 ²⁾	12,000 ³⁾

- 1) Reflectors → 4 / 8.2-63
2) to be used only for sensing ranges > 1,000 mm
3) to be used only for sensing ranges > 5,000 mm

Laser retro-reflective sensors SOEL-RSP

Technical data

Electrical data			
Version	20x32x12 mm		50x50x17 mm
Switch output	PNP or NPN		
Switching element function	Switchable		Antivalent
Electrical connection	Plug	M8 x 1, 4-pin	M12x1, 4-pin
	Cable	4-core	
Cable length	[m]	2.0	3.0
Operating voltage range	[V DC]	10 ... 30	
Residual ripple	[%]	10	
Max. switching frequency	[Hz]	1,000	2,500
Max. output current	[mA]	100	200
Voltage drop	[V]	≤ 2.4	
Idle current	[mA]	25	40
Protection against short circuit	Pulsed		
Protection against polarity reversal	For all electrical connections		
Protection class to EN 60 529	IP67		
CE marking symbol (see conformity declaration)	As per EU EMC directive		
	As per EU low voltage directive		
Approval	c UL us - Listed (OL)		

Materials	
Body	Acrylic butadiene styrene
Cable sheath	Polyurethane
Material note	Free of copper and PTFE

Operating and environmental conditions				
Version	20x32x12 mm		50x50x17 mm	
Cable installation	fixed	flexible	fixed	flexible
Ambient temperature	[°C]	-20 ... +60	-20 ... +45	-5 ... +45
Corrosion resistance class CRC ¹⁾	4 ²⁾ / 2 ³⁾		4	

- 1) Corrosion resistance class 2 according to Festo standard 940 070
Components requiring moderate corrosion resistance. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.
Corrosion resistance class 4 according to Festo standard 940 070
Components requiring higher corrosion resistance. Parts used with aggressive media, e.g. food or chemical industry. These applications should be supported with special tests with the media if required.
- 2) Cable type
- 3) Plug type

Dimensions

Download CAD data → www.festo.com/en/engineering

20x32x12 mm

Plug type

Cable type

Technical drawing of the cable type sensor. Dimensions include: 20 (width), 2.6 (pin spacing), 3.2 (pin diameter), 12 (height), 17 (total height), 9 (height to top of body), 1 (height to top of cable), 24 (height to top of cable), 10.7 (height to bottom of cable), 3.5 (height to bottom of cable), and 3.8 (height to bottom of cable). Callouts 1-6 point to: 1. Connecting cable, 2. Plug suitable for plug socket with cable SIM-M8-..., 3. Mounting holes, 4. Teach-in, 5. Receiver, 6. Transmitter.

Technical drawing of the plug type sensor. Dimensions include: 20 (width), 2.6 (pin spacing), 3.2 (pin diameter), 12 (height), 17 (total height), 9 (height to top of body), 1 (height to top of cable), 24 (height to top of cable), 10.7 (height to bottom of cable), 3.5 (height to bottom of cable), and 3.8 (height to bottom of cable). Callouts 1-6 point to: 1. Connecting cable, 2. Plug suitable for plug socket with cable SIM-M8-..., 3. Mounting holes, 4. Teach-in, 5. Receiver, 6. Transmitter.

1 Connecting cable

2 Plug suitable for plug socket with cable SIM-M8-...

4 Teach-in
5 Receiver

6 Transmitter

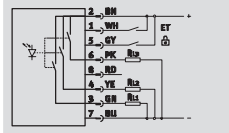
3 Mounting holes

Colour sensor SOEC-RT

Technical data



Function



3x PNP, NO contact, with plug

- Sensor for measuring colour
- Beam exit straight
- Block design
- Version: 50x50x17 mm



General technical data	
Method of measurement	Colour sensor
Measured variable	Position
Light type	white
Working range [mm]	12 ... 32
Reference material	18%
Setting options	Teach-in Teach-in via electrical connection
Max. light spot [mm]	∅ 4 mm at a sensing range of 22 mm
Ready status display	Green LED
Switching status display	LED
Operating reserve display	Green LED
Type of mounting	Via through-holes
Conforms to	DIN EN 60947-5-2

Electrical data	
Switch output	3x PNP
Switching element function	Light switching
Electrical connection Plug	M1 2x1, 8-pin
Operating voltage range [V DC]	16 ... 30
Residual ripple [%]	10
Max. switching frequency [Hz]	500
Max. output current [mA]	100
Voltage drop [V]	≤ 2.4
Idle current [mA]	40
Protection against short circuit	Pulsed
Protection against polarity reversal	For all electrical connections
Protection class to EN 60 529	IP67
CE marking symbol (see conformity declaration)	As per EU EMC directive As per EU low voltage directive
Approval	c UL us - Listed (OL)

Materials	
Body	Acrylic butadiene styrene
Material note	Free of copper and PTFE

Operating and environmental conditions	
Ambient temperature [°C]	-10 ... +55
Corrosion resistance class CRC ¹⁾	4

1) Corrosion resistance class 4 according to Festo standard 940 070
Components requiring higher corrosion resistance. Parts used with aggressive media, e.g. food or chemical industry. These applications should be supported with special tests with the media if required.

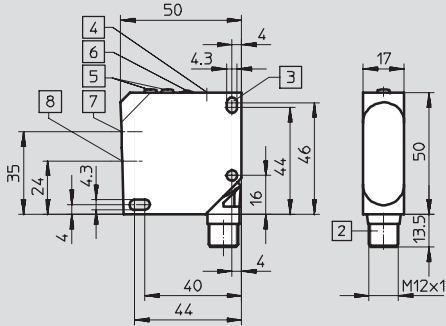
Colour sensor SOEC-RT

Technical data




Dimensions

Download CAD data → www.festo.com/en/engineering



- 2 Plug suitable for plug socket with cable SIM-M12-...
- 3 Mounting holes
- 4 Teach-in
- 5 Light emitting diode (LED)
- 6 Light emitting diode (LED)
- 7 Receiver
- 8 Transmitter

Ordering data

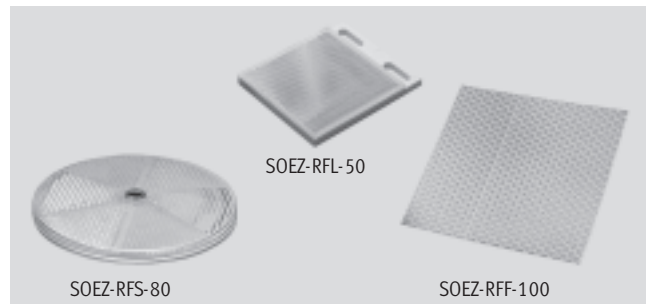
Version	Working range [mm]	Switch output	Electrical connection		Weight [g]	Part No.	Type
			Cable	Plug			
50x50x17 mm							
	12 ... 32	PNP	-	■	38	538 236	SOEC-RT-Q50-PS-S-7L

Sensors SOE..., opto-electronic

Accessories



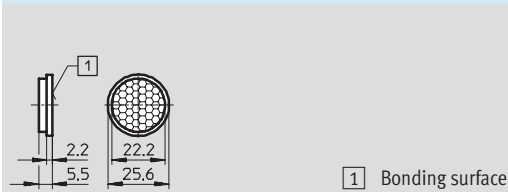
Reflectors



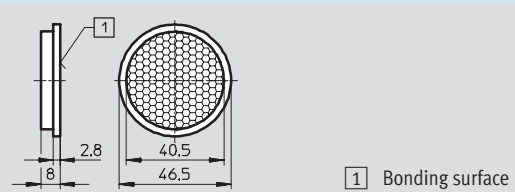
Dimensions

Download CAD data → www.festo.com/en/engineering

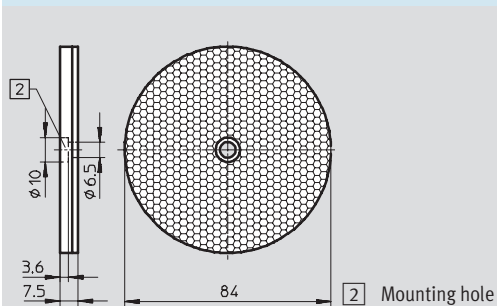
Reflector SOEZ-RFS-20



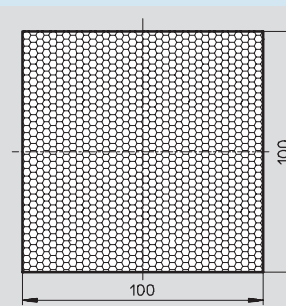
Reflector SOEZ-RFS-40



Reflector SOEZ-RFS-80

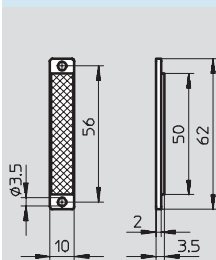


Reflector foil SOEZ-RFF-100

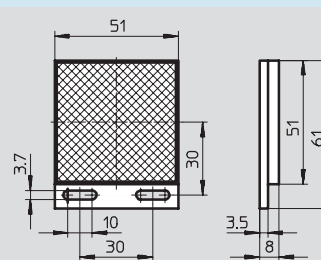


Reflectors for laser light

Reflector SOEZ-RFL-10



Reflector SOEZ-RFL-50



Ordering data

Designation	Description	Material	Free of copper and PTFE	Part No.	Type
Reflector	Ø 20 mm		–	165 363	SOEZ-RFS-20
	Ø 40 mm		–	165 364	SOEZ-RFS-40
	Ø 84 mm		–	165 365	SOEZ-RFS-80
Reflector foil	square 100 x 100 mm		–	165 362	SOEZ-RFF-100
Reflectors for laser light	square 50x50 mm	Polymethylmethacrylate, acrylic butadiene styrene	■	537 788	SOEZ-RFL-50
	rectangular 10x50 mm	Polymethylmethacrylate, acrylic butadiene styrene	■	537 787	SOEZ-RFL-10

Sensors SOE..., opto-electronic

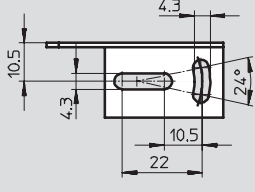
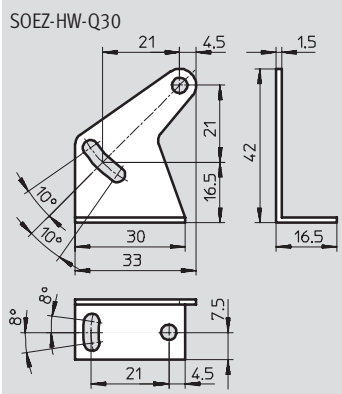
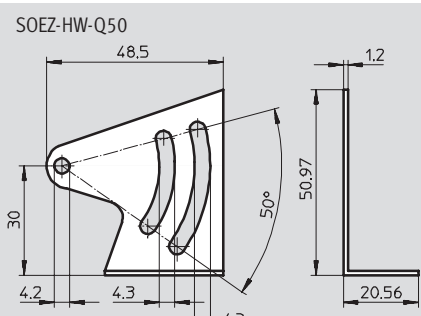
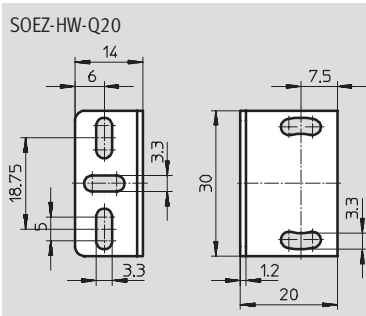
Accessories



Mounting bracket SOEZ-HW



Sensors and monitoring devices
Sens.S015
8.2



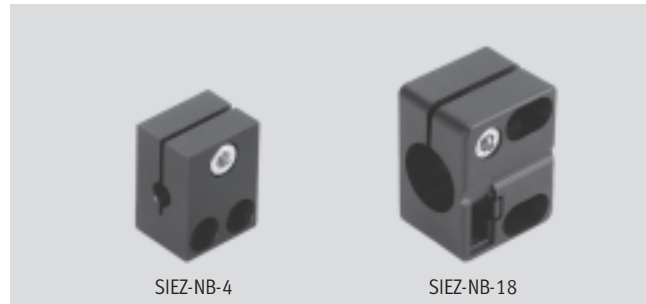
Ordering data					
Designation	Use	Material	Free of copper and PTFE	Part No.	Type
Mounting bracket	Sensors in block design 20x32x12 mm	Steel, nickel-plated	■	537 785	SOEZ-HW-Q20
	Sensors in block design 30x30x15 mm	Galvanised steel	■	165 355	SOEZ-HW-Q30
	Sensors in block design 50x50x17 mm	Steel, nickel-plated	■	537 786	SOEZ-HW-Q50

Sensors SOE..., opto-electronic

Accessories



Sensor retainer SIEZ-NB



Dimensions Download CAD data → www.festo.com/en/engineering

SIEZ-NB-4

SIEZ...B-12, SIEZ...B-18

1 Position for inscription label SIEZ-LB

SIEZ-UH

SIEZ-UV

1 Sensor retainer SIEZ...
2 Screw DIN 7981
4.2 x 22 or 4.2 x 19
(not included in scope of delivery)

Dimensions					
Sensor size	H1	L1	L2	L3	T1
M12x1	18.3	40	28	9.75	9.75
M18x1	24	40	28	7.5	12.85

Sensors SOE..., opto-electronic

Accessories

FESTO

Ordering data – Sensor retainer						
Designation	Sensor size	Weight [g]	Material	Free of copper, PTFE and silicone	Part No.	Type
	M12x1	20	Polyamide, reinforced	■	538 348	SIEZ-B-12
				■	538 347	SIEZ-NB-12
	M18x1	21		■	538 350	SIEZ-B-18
				■	538 349	SIEZ-NB-18
	M12x1, M18x1	25		■	538 354	SIEZ-UH
		16		■	538 355	SIEZ-UV
Inscription label	M12x1, M18x1	15		■	538 353	SIEZ-LB

Ordering data – Plug sockets with cable M8x1						Technical data → 4 / 8.3-22	
	Assembly	Port	for switch output		Cable length [m]	Part No.	Type
			PNP	NPN			
Straight socket							
	Union nut M8x1	3-pin	■	■	2.5	159 420	SIM-M8-3GD-2,5-PU
			■	■	5	159 421	SIM-M8-3GD-5-PU
		4-pin	■	■	2.5	158 960	SIM-M8-4GD-2,5-PU
			■	■	5	158 961	SIM-M8-4GD-5-PU
Angled socket							
	Union nut M8x1	3-pin	■	■	2.5	159 422	SIM-M8-3WD-2,5-PU
			■	■	5	159 423	SIM-M8-3WD-5-PU
			■	-	2.5	159 424	SIM-M8-3WD-2,5-PSL-PU
			■	-	5	159 425	SIM-M8-3WD-5-PSL-PU
		4-pin	-	■	2.5	159 426	SIM-M8-3WD-2,5-NSL-PU
			-	■	5	159 427	SIM-M8-3WD-5-NSL-PU
			■	■	2.5	158 962	SIM-M8-4WD-2,5-PU
			■	■	5	158 963	SIM-M8-4WD-5-PU

Ordering data – Plug sockets with cable M12x1						Technical data → 4 / 8.3-26	
	Assembly	Port	for switch output		Cable length [m]	Part No.	Type
			PNP	NPN			
Straight socket							
	Union nut M12x1	3-pin	■	■	2.5	159 428	SIM-M12-3GD-2,5-PU
			■	■	5	159 429	SIM-M12-3GD-5-PU
		4-pin	■	■	5	164 259	SIM-M12-4GD-5-PU
			■	■	2	525 616	SIM-M12-8GD-2-PU
		■	■	5	525 618	SIM-M12-8GD-5-PU	
Angled socket							
	Union nut M12x1	3-pin	■	■	2.5	159 430	SIM-M12-3WD-2,5-PU
			■	■	5	159 431	SIM-M12-3WD-5-PU
			■	-	2.5	159 432	SIM-M12-3WD-2,5-PSL-PU
			■	-	5	159 433	SIM-M12-3WD-5-PSL-PU
		4-pin	-	■	2.5	159 434	SIM-M12-3WD-2,5-NSL-PU
			-	■	5	159 435	SIM-M12-3WD-5-NSL-PU
			■	■	5	164 258	SIM-M12-4WD-5-PU
			■	■	5	164 258	SIM-M12-4WD-5-PU