

Sensors SOE..., opto-electronic

Product overview



- Diffuse sensors and retro-reflective sensors
- Sensors with background suppression
- Fibre-optic units
- Distance sensors
- Laser contrast sensors, diffuse sensors and retro-reflective sensors
- Colour sensors
- Ranges up to 20 m
- Adjustment using teach-in or potentiometer

Detailed product information

➔ www.festo.com/catalogue/soe

Product overview						
Variant	Type	Operating voltage	Switch output	Analogue output	Design	➔ Page/Internet
Diffuse sensor	SOEG-RT	10 ... 36 V DC	PNP	–	Round	3
	Basic version	10 ... 30 V DC	NPN	–	Block-shaped	
	SOEG-RTZ		PNP	–	Round	5
	With cylindrical light beam		NPN			
Sensor with back-ground suppression	SOEG-RTH	10 ... 36 V DC	PNP	–	Round	6
		10 ... 30 V DC	NPN	–	Block-shaped	
Retro-reflective sensor	SOEG-RSP	10 ... 36 V DC	PNP	–	Round	8
	Basic version	10 ... 30 V DC	NPN	–	Block-shaped	
	SOEG-RSG		PNP	–	Block-shaped	10
	For transparent objects		NPN			
Through-beam sensor	SOEG-S	10 ... 36 V DC	–	–	Round	11
	Transmitter	10 ... 30 V DC			Block-shaped	
	SOEG-E	10 ... 36 V DC	PNP	–	Round	11
	Receiver	10 ... 30 V DC	NPN	–	Block-shaped	
Fibre-optic unit	SOEG-L	10 ... 30 V DC	PNP	–	Block-shaped	13
	Basic version		NPN			
Distance sensor	SOEG-RTD	15 ... 30 V DC	PNP	0 ... 10 V	Block-shaped	14
Laser diffuse sensor	SOEL-RT	10 ... 30 V DC	PNP	–	Block-shaped	15
	Contrast sensor		NPN	–		
Laser sensor with back-ground suppression	SOEL-RTH		PNP	–	Block-shaped	15
			NPN			
Laser retro-reflective sensor	SOEL-RSP	10 ... 30 V DC	PNP	–	Block-shaped	16
			NPN			
Laser distance sensor	SOEL-RTD	16 ... 30 V DC	2x PNP	4 ... 20 mA	Block-shaped	17
		18 ... 28 V DC	–	0 ... 10 V		
Colour sensor	SOEC-RT	10 ... 30 V DC	3x PNP	–	Block-shaped	18

Sensors SOE..., opto-electronic

Type codes

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		SOE	G	RSP	Q20	PP	K	2L	TI	
Type										
SOE	Opto-electronic sensors									
Design										
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	Sensor with background suppression									
RTZ	Diffuse sensor with cylindrical light beam									
RTD	Distance sensor									
RSG	Retro-reflective sensor for transparent objects									
Design, size, version										
4	Round, dia. 4 mm									
M5	Round, M5									
M12	Round, M12									
M18	Round, M18, beam exit straight									
M18W	Round, M18, beam exit angled									
Q20	Block design, 20x32x12 mm									
Q30	Block design, 30x30x15 mm									
Q50	Block design, 50x50x17 mm									
Switch output										
PS	PNP, normally open									
NS	NPN, normally open									
PA	PNP, antivalent									
NA	NPN, antivalent									
PP	PNP, switchable									
NP	NPN, switchable									
PU	Analogue 0 ... 10 V									
Electrical connection										
K	Cable									
S	Plug									
Indication										
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									
Position measuring range										

Diffuse sensors SOEG-RT

Technical data

General technical data							
Size	∅ 4 mm	M5	M12x1	M18x1, straight	M18x1, angled	20x32x12 mm	30x30x15 mm
Working range [mm]	50		70 ... 300	40 ... 600	0 ... 600	10 ... 300	0 ... 600
Light type	Infrared		Red			Red	Infrared
Setting options	-		Potentiometer			Teach-in Teach-in via electrical connection	Potentiometer








Electrical data							
Size	∅ 4 mm	M5	M12x1	M18x1, straight	M18x1, angled	20x32x12 mm	30x30x15 mm
Electrical connection	Cable	3-wire		4-wire	3-wire	4-wire	3-wire
	Plug	M8x1, 3-pin		M12x1, 3-pin	M12x1, 4-pin	M12x1, 3-pin	M8x1, 4-pin M8x1, 3-pin
Operating voltage range [V DC]	10 ... 30		10 ... 36			10 ... 30	
Max. output current [mA]	100		200			100	200
Max. switching frequency [Hz]	250		1,000			1,000	
Protection against short circuit	Pulsed						
Protection against polarity reversal	For all electrical connections						
Protection class	IP67		IP65, IP67			IP67	IP65

Operating and environmental conditions							
Size	∅ 4 mm	M5	M12x1	M18x1, straight	M18x1, angled	20x32x12 mm	30x30x15 mm
Ambient temperature [°C]	0 ... 55		-25 ... +55			-20 ... +60	-25 ... +55
Ambient temperature with flexible cable installation [°C]	0 ... 55		-5 ... +55			-5 ... +60	-5 ... +55
CE mark (see declaration of conformity)	In accordance with EU EMC directive						
Certification	c UL us - Listed (OL)						
	C-Tick						

Materials							
Size	∅ 4 mm	M5	M12x1	M18x1, straight	M18x1, angled	20x32x12 mm	30x30x15 mm
Housing	High-alloy stainless steel		Brass, chrome-plated			Acrylic butadiene styrene	Polybutylene terephthalate, reinforced
Cable sheath	Polyurethane						

Diffuse sensors SOEG-RT

Technical data

Ordering data							
Size	Working range [mm]	Switching element function	Switch output	Electrical connection			
				Cable		Plug	
				Part No.	Type	Part No.	Type
Ø 4 mm							
	50	Light switching	PNP	537 671	SOEG-RT-4-PS-K-L	537 673	SOEG-RT-4-PS-S-L
			NPN	537 674	SOEG-RT-4-NS-K-L	537 676	SOEG-RT-4-NS-S-L
M5							
	50	Light switching	PNP	537 677	SOEG-RT-M5-PS-K-L	537 679	SOEG-RT-M5-PS-S-L
			NPN	537 680	SOEG-RT-M5-NS-K-L	537 682	SOEG-RT-M5-NS-S-L
M12							
	70 ... 300	Light switching	PNP	547 908	SOEG-RT-M12-PS-K-2L	547 909	SOEG-RT-M12-PS-S-2L
			NPN	547 906	SOEG-RT-M12-NS-K-2L	547 907	SOEG-RT-M12-NS-S-2L
M18, beam exit straight							
	40 ... 600	Antivalent	PNP	547 912	SOEG-RT-M18-PA-K-2L	547 913	SOEG-RT-M18-PA-S-2L
			NPN	547 910	SOEG-RT-M18-NA-K-2L	547 911	SOEG-RT-M18-NA-S-2L
M18, beam exit angled							
	0 ... 600	Light switching	PNP	537 701	SOEG-RT-M18W-PS-K-2L	537 702	SOEG-RT-M18W-PS-S-2L
			NPN	537 717	SOEG-RT-M18W-NS-K-2L	537 718	SOEG-RT-M18W-NS-S-2L
20x32x12 mm							
	10 ... 300	Switchable	PNP	537 732	SOEG-RT-Q20-PP-K-2L-TI	537 731	SOEG-RT-Q20-PP-S-2L-TI
			NPN	537 734	SOEG-RT-Q20-NP-K-2L-TI	537 733	SOEG-RT-Q20-NP-S-2L-TI
30x30x15 mm							
	0 ... 600	Light switching	PNP	165 350	SOEG-RT-Q30-PS-K-2L	165 351	SOEG-RT-Q30-PS-S-2L
			NPN	165 348	SOEG-RT-Q30-NS-K-2L	165 349	SOEG-RT-Q30-NS-S-2L

Diffuse sensors SOEG-RTZ, with cylindrical light beam



Technical data

General technical data		
Size	∅ 4 mm	M5
Working range [mm]	10	
Light type	Infrared	
Setting options	-	

Electrical data		
Size	∅ 4 mm	M5
Electrical connection	Cable, 3-wire	
Operating voltage range [V DC]	10 ... 30	
Max. output current [mA]	100	
Max. switching frequency [Hz]	250	
Protection against short circuit	Pulsed	
Protection against polarity reversal	For all electrical connections	
Protection class	IP67	

Operating and environmental conditions		
Size	∅ 4 mm	M5
Ambient temperature [°C]	0 ... 55	
Ambient temperature with flexible cable installation [°C]	0 ... 55	
CE mark (see declaration of conformity)	In accordance with EU EMC directive	
Certification	c UL us - Listed (OL)	
	C-Tick	

Materials		
Size	∅ 4 mm	M5
Housing	High-alloy stainless steel	
Cable sheath	Polyurethane	

Ordering data					
Size	Working range [mm]	Switching element function	Switch output	Electrical connection	
				Cable	Part No. Type
∅ 4 mm					
	10	Light switching	PNP	537 672	SOEG-RTZ-4-PS-K-L
			NPN	537 675	SOEG-RTZ-4-NS-K-L
M5					
	10	Light switching	PNP	537 678	SOEG-RTZ-M5-PS-K-L
			NPN	537 681	SOEG-RTZ-M5-NS-K-L

Sensors SOEG-RTH, with background suppression

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Technical data

General technical data					
Size	M18x1, straight	M18x1, angled	20x32x12 mm	30x30x15 mm	50x50x17 mm
Working range [mm]	10 ... 120	10 ... 120	25 ... 100	15 ... 150	30 ... 300
Light type	Red				
Setting options	Potentiometer		Teach-in Teach-in via electrical connection	Potentiometer	Potentiometer


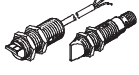
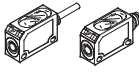
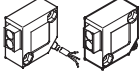

Electrical data						
Size	M18x1, straight	M18x1, angled	20x32x12 mm	30x30x15 mm	50x50x17 mm	
Electrical connection	Cable	3-wire		4-wire	3-wire	4-wire
	Plug	M12x1, 3-pin		M8x1, 4-pin	M12x1, 3-pin	M12x1, 4-pin
Operating voltage range [V DC]	10 ... 36		10 ... 30	10 ... 36	10 ... 30	
Max. output current [mA]	200		100	200		
Max. switching frequency [Hz]	500		1,000	500	1,000	
Protection against short circuit	Pulsed					
Protection against polarity reversal	For all electrical connections					
Protection class	IP65, IP67		IP67	IP65	IP67	

Operating and environmental conditions					
Size	M18x1, straight	M18x1, angled	20x32x12 mm	30x30x15 mm	50x50x17 mm
Ambient temperature [°C]	-25 ... +55		-20 ... +60	-25 ... +55	-20 ... +60
Ambient temperature with flexible cable installation [°C]	-5 ... +55		-5 ... +60	-5 ... +55	-5 ... +60
CE mark (see declaration of conformity)	In accordance with EU EMC directive		In accordance with EU EMC directive In accordance with EU Low Voltage Directive	In accordance with EU EMC directive	In accordance with EU EMC directive In accordance with EU Low Voltage Directive
Certification	c UL us - Listed (OL) C-Tick				

Materials					
Size	M18x1, straight	M18x1, angled	20x32x12 mm	30x30x15 mm	50x50x17 mm
Housing	Brass, chrome-plated		Acrylic butadiene styrene	Polybutylene terephthalate, reinforced	Acrylic butadiene styrene
Cable sheath	Polyurethane				

Sensors SOEG-RTH, with background suppression

Technical data

Ordering data							
Size	Working range [mm]	Switching element function	Switch output	Electrical connection			
				Cable		Plug	
				Part No.	Type	Part No.	Type
M18, beam exit straight							
	10 ... 120	Antivalent	PNP	537 687	SOEG-RTH-M18-PS-K-2L	537 689	SOEG-RTH-M18-PS-S-2L
			NPN	537 705	SOEG-RTH-M18-NS-K-2L	537 707	SOEG-RTH-M18-NS-S-2L
M18, beam exit angled							
	10 ... 120	Light switching	PNP	537 688	SOEG-RTH-M18W-PS-K-2L	537 690	SOEG-RTH-M18W-PS-S-2L
			NPN	537 706	SOEG-RTH-M18W-NS-K-2L	537 708	SOEG-RTH-M18W-NS-S-2L
20x32x12 mm							
	25 ... 100	Switchable	PNP	537 724	SOEG-RTH-Q20-PP-K-2L-TI	537 723	SOEG-RTH-Q20-PP-S-2L-TI
			NPN	537 726	SOEG-RTH-Q20-NP-K-2L-TI	537 725	SOEG-RTH-Q20-NP-S-2L-TI
30x30x15 mm							
	15 ... 150	Light switching	PNP	537 719	SOEG-RTH-Q30-PS-K-2L	537 720	SOEG-RTH-Q30-PS-S-2L
			NPN	537 721	SOEG-RTH-Q30-NS-K-2L	537 722	SOEG-RTH-Q30-NS-S-2L
50x50x17 mm							
	30 ... 300	Light switching	PNP	537 771	SOEG-RTH-Q50-PA-K-3L	537 773	SOEG-RTH-Q50-PA-S-3L
			NPN	537 772	SOEG-RTH-Q50-NA-K-3L	537 774	SOEG-RTH-Q50-NA-S-3L

Retro-reflective sensors SOEG-RSP

Technical data

General technical data						
Size	M12x1	M18x1, straight	M18x1, angled	20x32x12 mm	30x30x15 mm	50x50x17 mm
Working range [mm]	1,500	2,000	2,000	0 ... 2,500	0 ... 2,000	0 ... 5,500
Light type	Red polarised					
Setting options	-			Teach-in Teach-in via electrical connection ¹⁾	Potentiometer	

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


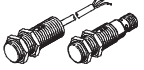
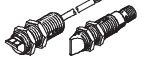

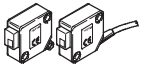

Electrical data						
Size	M12x1	M18x1, straight	M18x1, angled	20x32x12 mm	30x30x15 mm	50x50x17 mm
Electrical connection	Cable	3-wire		4-wire	3-wire	4-wire
	Plug	M12x1, 3-pin		M8x1, 4-pin	M8x1, 3-pin	M12x1, 4-pin
Operating voltage range [V DC]	10 ... 36			10 ... 30		
Max. output current [mA]	200			100	200	
Max. switching frequency [Hz]	1,000					
Protection against short circuit	Pulsed					
Protection against polarity reversal	For all electrical connections					
Protection class	IP65, IP67			IP67	IP65	IP67

Operating and environmental conditions						
Size	M12x1	M18x1, straight	M18x1, angled	20x32x12 mm	30x30x15 mm	50x50x17 mm
Ambient temperature [°C]	-25 ... +55			-20 ... +60	-25 ... +55	-20 ... +60
Ambient temperature with flexible cable installation [°C]	-5 ... +55			-5 ... +60	-5 ... +55	-5 ... +60
CE mark (see declaration of conformity)	In accordance with EU EMC directive			In accordance with EU EMC directive In accordance with EU Low Voltage Directive	In accordance with EU EMC directive	In accordance with EU EMC directive In accordance with EU Low Voltage Directive
Certification	c UL us - Listed (OL) C-Tick					

Materials						
Size	M12x1	M18x1, straight	M18x1, angled	20x32x12 mm	30x30x15 mm	50x50x17 mm
Housing	Brass, chrome-plated			Acrylic butadiene styrene	Polybutylene terephthalate, reinforced	Acrylic butadiene styrene
Cable sheath	Polyurethane					

Retro-reflective sensors SOEG-RSP

Technical data

Ordering data							
Size	Working range [mm]	Switching element function	Switch output	Electrical connection			
				Cable		Plug	
				Part No.	Type	Part No.	Type
M12							
	1,500	Dark switching	PNP	537 683	SOEG-RSP-M12-PS-K-2L	537 684	SOEG-RSP-M12-PS-S-2L
			NPN	537 685	SOEG-RSP-M12-NS-K-2L	537 686	SOEG-RSP-M12-NS-S-2L
M18, beam exit straight							
	2,000	Dark switching	PNP	537 697	SOEG-RSP-M18-PS-K-2L	537 699	SOEG-RSP-M18-PS-S-2L
			NPN	537 713	SOEG-RSP-M18-NS-K-2L	537 715	SOEG-RSP-M18-NS-S-2L
M18, beam exit angled							
	2,000	Dark switching	PNP	537 698	SOEG-RSP-M18W-PS-K-2L	537 700	SOEG-RSP-M18W-PS-S-2L
			NPN	537 714	SOEG-RSP-M18W-NS-K-2L	537 716	SOEG-RSP-M18W-NS-S-2L
20x32x12 mm							
	2,500	Switchable	PNP	537 750	SOEG-RSP-Q20-PP-K-2L-TI	537 749	SOEG-RSP-Q20-PP-S-2L-TI
			NPN	537 752	SOEG-RSP-Q20-NP-K-2L-TI	537 751	SOEG-RSP-Q20-NP-S-2L-TI
	2,500	Switchable	PNP	-	-	537 784	SOEG-RSP-Q20-PS-S-2L ¹⁾
30x30x15 mm							
	0 ... 2,000	Dark switching	PNP	165 330	SOEG-RSP-Q30-PS-K-2L	165 331	SOEG-RSP-Q30-PS-S-2L
			NPN	165 328	SOEG-RSP-Q30-NS-K-2L	165 329	SOEG-RSP-Q30-NS-S-2L
50x50x17 mm							
	0 ... 5,500	Antivalent	PNP	537 763	SOEG-RSP-Q50-PA-K-3L	537 765	SOEG-RSP-Q50-PA-S-3L
			NPN	537 764	SOEG-RSP-Q50-NA-K-3L	537 766	SOEG-RSP-Q50-NA-S-3L

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

Retro-reflective sensors SOEG-RSG, for transparent objects

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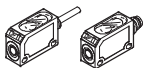
Technical data

General technical data	
Size	20x32x12 mm
Working range [mm]	5 ... 500
Light type	Red polarised
Setting options	Teach-in Teach-in via electrical connection

Electrical data		
Size	20x32x12 mm	
Electrical connection	Cable	4-wire
	Plug	M8x1, 4-pin
Operating voltage range [V DC]	10 ... 30	
Max. output current [mA]	100	
Max. switching frequency [Hz]	1,000	
Protection against short circuit	Pulsed	
Protection against polarity reversal	For all electrical connections	
Protection class	IP67	

Operating and environmental conditions	
Size	20x32x12 mm
Ambient temperature [°C]	-20 ... +60
Ambient temperature with flexible cable installation [°C]	-5 ... +60
CE mark (see declaration of conformity)	In accordance with EU EMC directive
	In accordance with EU Low Voltage Directive
Certification	c UL us - Listed (OL)
	C-Tick

Materials	
Size	20x32x12 mm
Housing	Acrylic butadiene styrene
Cable sheath	Polyurethane

Ordering data							
Size	Working range [mm]	Switching element function	Switch output	Electrical connection			
				Cable		Plug	
				Part No.	Type	Part No.	Type
20x32x12 mm							
	5 ... 500	Switchable	PNP	537 754 SOEG-RSG-Q20-PP-K-2L-TI	537 753 SOEG-RSG-Q20-PP-S-2L-TI		

Through-beam sensors SOEG-S/E

FESTO

Technical data

General technical data						
Size	M18x1, straight	M18x1, angled	20x32x12 mm	30x30x15 mm	50x50x17 mm	
Working range [mm]	20,000	20,000	6,000	2,000	15,000	
Light type	Red			Infrared		
Setting options	-		Teach-in Teach-in via electrical connection	Potentiometer		

Electrical data						
Size	M18x1, straight	M18x1, angled	20x32x12 mm	30x30x15 mm	50x50x17 mm	
Electrical connection	Transmitter	Cable	3-wire	4-wire	3-wire	4-wire
		Plug	M12x1, 3-pin	M8x1, 4-pin	M8x1, 3-pin	M12x1, 4-pin
	Receiver	Cable	4-wire	4-wire	3-wire	4-wire
		Plug	M12x1, 4-pin	M8x1, 4-pin	M8x1, 3-pin	M12x1, 4-pin
Operating voltage range [V DC]	10 ... 36		10 ... 30			
Max. output current [mA]	200		100	200		
Max. switching frequency [Hz]	1,000		500	1,000		
Protection against short circuit	Pulsed					
Protection against polarity reversal	For all electrical connections					
Protection class	IP65, IP67		IP67	IP65	IP67	


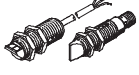
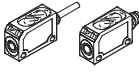


Operating and environmental conditions						
Size	M18x1, straight	M18x1, angled	20x32x12 mm	30x30x15 mm	50x50x17 mm	
Ambient temperature [°C]	-25 ... +55		-20 ... +60	-25 ... +55	-20 ... +60	
Ambient temperature with flexible cable installation [°C]	-5 ... +55		-5 ... +60	-5 ... +55	-5 ... +60	
CE mark (see declaration of conformity)	In accordance with EU EMC directive		In accordance with EU EMC directive In accordance with EU Low Voltage Directive	In accordance with EU EMC directive	In accordance with EU EMC directive In accordance with EU Low Voltage Directive	
Certification	c UL us - Listed (OL) C-Tick					

Materials						
Size	M18x1, straight	M18x1, angled	20x32x12 mm	30x30x15 mm	50x50x17 mm	
Housing	Brass, chrome-plated		Acrylic butadiene styrene	Polybutylene terephthalate, reinforced	Acrylic butadiene styrene	
Cable sheath	Polyurethane					

Through-beam sensors SOEG-S/E

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Technical data

Ordering data								
Size	Working range [mm]	Function	Switching element function	Switch output	Electrical connection			
					Cable		Plug	
					Part No.	Type	Part No.	Type
M18, beam exit straight								
	20,000	Transmitter	–	–	537 691	SOEG-S-M18-K-L	537 703	SOEG-S-M18-S-L
		Receiver	Antivalent	PNP	537 692	SOEG-E-M18-PA-K-2L	537 704	SOEG-E-M18-PA-S-2L
				NPN	537 709	SOEG-E-M18-NA-K-2L	537 711	SOEG-E-M18-NA-S-2L
M18, beam exit angled								
	20,000	Transmitter	–	–	537 693	SOEG-S-M18W-K-L	537 695	SOEG-S-M18W-S-L
		Receiver	Antivalent	PNP	537 694	SOEG-E-M18W-PA-K-2L	537 696	SOEG-E-M18W-PA-S-2L
				NPN	537 710	SOEG-E-M18W-NA-K-2L	537 712	SOEG-E-M18W-NA-S-2L
20x32x12 mm								
	6,000	Transmitter	–	–	537 744	SOEG-S-Q20-K-L-TI	537 743	SOEG-S-Q20-S-L-TI
		Receiver	Switchable	PNP	537 746	SOEG-E-Q20-PP-K-2L-TI	537 745	SOEG-E-Q20-PP-S-2L-TI
				NPN	537 748	SOEG-E-Q20-NP-K-2L-TI	537 747	SOEG-E-Q20-NP-S-2L-TI
30x30x15 mm								
	2,000	Transmitter	–	–	165 352	SOEG-S-Q30-K-L	165 353	SOEG-S-Q30-S-L
		Receiver	Dark switching	PNP	165 322	SOEG-E-Q30-PS-K-2L	165 323	SOEG-E-Q30-PS-S-2L
				NPN	165 320	SOEG-E-Q30-NS-K-2L	165 321	SOEG-E-Q30-NS-S-2L
50x50x17 mm								
	15,000	Transmitter	–	–	537 779	SOEG-S-Q50-K-L	537 781	SOEG-S-Q50-S-L
		Receiver	Antivalent	PNP	537 780	SOEG-E-Q50-PA-K-3L	537 782	SOEG-E-Q50-PA-S-3L

Fibre-optic units SOEG-L

Technical data

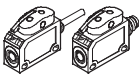
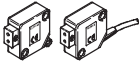
FESTO

General technical data		
Size	20x32x12 mm	30x30x15 mm
Working range [mm]	0 ... 250	0 ... 120
Light type	Red	
Setting options	Teach-in Teach-in via electrical connection	Potentiometer

Electrical data		
Size	20x32x12 mm	30x30x15 mm
Electrical connection	Cable	4-wire
	Plug	M8x1, 4-pin
Operating voltage range [V DC]	10 ... 30	
Max. output current [mA]	100	200
Max. switching frequency [Hz]	1,000	
Protection against short circuit	Pulsed	
Protection against polarity reversal	For all electrical connections	
Protection class	IP67	IP65

Operating and environmental conditions		
Size	20x32x12 mm	30x30x15 mm
Ambient temperature [°C]	0 ... 60	-25 ... +55
Ambient temperature with flexible cable installation [°C]	0 ... 60	-5 ... +55
CE mark (see declaration of conformity)	In accordance with EU EMC directive	In accordance with EU EMC directive
	In accordance with EU Low Voltage Directive	
Certification	c UL us - Listed (OL)	
	C-Tick	

Materials		
Size	20x32x12 mm	30x30x15 mm
Housing	Acrylic butadiene styrene	Polybutylene terephthalate, reinforced
Cable sheath	Polyurethane	

Ordering data							
Size	Working range [mm]	Switching element function	Switch output	Electrical connection			
				Cable		Plug	
				Part No.	Type	Part No.	Type
20x32x12 mm							
	0 ... 250	Switchable	PNP	537 740	SOEG-L-Q20-PP-K-2L-TI	537 739	SOEG-L-Q20-PP-S-2L-TI
			NPN	537 742	SOEG-L-Q20-NP-K-2L-TI	537 741	SOEG-L-Q20-NP-S-2L-TI
30x30x15 mm							
	0 ... 120	Antivalent	PNP	165 326	SOEG-L-Q30-P-A-K-2L	165 327	SOEG-L-Q30-P-A-S-2L
			NPN	165 324	SOEG-L-Q30-NA-K-2L	165 325	SOEG-L-Q30-NA-S-2L

Distance sensors SOEG-RTD

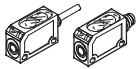
Technical data

General technical data	
Size	20x32x12 mm
Working range [mm]	20 ... 80
Displacement resolution [mm]	0.5
Light type	Red
Setting options	Teach-in Teach-in via electrical connection

Electrical data		
Size	20x32x12 mm	
Analogue output [V]	0 ... 10	
Electrical connection	Cable	4-wire
	Plug	M8x1, 4-pin
Operating voltage range [V DC]	15 ... 30	
Max. output current [mA]	100	
Max. switching frequency [Hz]	200	
Protection against short circuit	Pulsed	
Protection against polarity reversal	For all electrical connections	
Protection class	IP67	

Operating and environmental conditions	
Size	20x32x12 mm
Ambient temperature [°C]	0 ... 60
Ambient temperature with flexible cable installation [°C]	0 ... 60
CE mark (see declaration of conformity)	In accordance with EU EMC directive
	In accordance with EU Low Voltage Directive
Certification	c UL us - Listed (OL)
	C-Tick

Materials	
Size	20x32x12 mm
Housing	Acrylic butadiene styrene
Cable sheath	Polyurethane

Ordering data							
Size	Working range [mm]	Switching element function	Switch output	Electrical connection			
				Cable		Plug	
				Part No.	Type	Part No.	Type
20x32x12 mm							
	20 ... 80	Switchable	PNP	537 758	SOEG-RTD-Q20-PP-K-2L-TI	537 757	SOEG-RTD-Q20-PP-S-2L-TI

Laser sensors SOEL-RT...

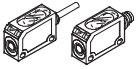
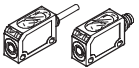

Technical data

General technical data			
Method of measurement	Contrast sensor (diffuse)		With background suppression
Size	20x32x12 mm	20x32x12 mm	50x50x17 mm
Working range [mm]	10 ... 150	30 ... 110	50 ... 300
Light type	Laser, red		
Laser protection class	2		
Setting options	Teach-in Teach-in via electrical connection	Teach-in Teach-in via electrical connection	Potentiometer

Electrical data			
Method of measurement	Contrast sensor (diffuse)		With background suppression
Size	20x32x12 mm	20x32x12 mm	50x50x17 mm
Electrical connection	Cable	4-wire	4-wire
	Plug	M8x1, 4-pin	M12x1, 4-pin
Operating voltage range [V DC]	10 ... 30	10 ... 30	
Max. output current [mA]	100	100	200
Max. switching frequency [Hz]	4,000	1,000	2,500
Protection against short circuit	Pulsed		
Protection against polarity reversal	For all electrical connections		
Protection class	IP67		

Operating and environmental conditions			
Method of measurement	Contrast sensor (diffuse)		With background suppression
Size	20x32x12 mm	20x32x12 mm	50x50x17 mm
Ambient temperature [°C]	-20 ... +60	-20 ... +60	-20 ... +45
Ambient temperature with flexible cable installation [°C]	-5 ... +60	-5 ... +60	-5 ... +45
CE mark (see declaration of conformity)	In accordance with EU EMC directive		
	In accordance with EU Low Voltage Directive		
Certification	c UL us - Listed (OL)		
	C-Tick		

Materials	
Housing	Acrylic butadiene styrene
Cable sheath	Polyurethane

Ordering data							
Size	Working range [mm]	Switching element function	Switch output	Electrical connection			
				Cable		Plug	
				Part No.	Type	Part No.	Type
20x32x12 mm, contrast sensor (diffuse)							
	10 ... 150	Switchable	PNP	537 736	SOEL-RT-Q20-PP-K-2L-TI	537 735	SOEL-RT-Q20-PP-S-2L-TI
			NPN	537 738	SOEL-RT-Q20-NP-K-2L-TI	537 737	SOEL-RT-Q20-NP-S-2L-TI
20x32x12 mm, with background suppression							
	30 ... 110	Switchable	PNP	537 729	SOEL-RTH-Q20-PP-K-2L-TI	537 727	SOEL-RTH-Q20-PP-S-2L-TI
			NPN	537 730	SOEL-RTH-Q20-NP-K-2L-TI	537 728	SOEL-RTH-Q20-NP-S-2L-TI
50x50x17 mm, with background suppression							
	50 ... 300	Antivalent	PNP	537 777	SOEL-RTH-Q50-PA-K-3L	537 775	SOEL-RTH-Q50-PA-S-3L
			NPN	537 778	SOEL-RTH-Q50-NA-K-3L	537 776	SOEL-RTH-Q50-NA-S-3L

Laser retro-reflective sensors SOEL-RSP

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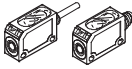

Technical data

General technical data		
Size	20x32x12 mm	50x50x17 mm
Working range [mm]	70 ... 3,000	20,000
Light type	Red polarised	
Laser protection class	1	1
Setting options	Teach-in Teach-in via electrical connection	Potentiometer

Electrical data		
Size	20x32x12 mm	50x50x17 mm
Electrical connection	Cable	4-wire
	Plug	M8x1, 4-pin
Operating voltage range [V DC]	10 ... 30	
Max. output current [mA]	100	200
Max. switching frequency [Hz]	4,000	2,500
Protection against short circuit	Pulsed	
Protection against polarity reversal	For all electrical connections	
Protection class	IP67	

Operating and environmental conditions		
Size	20x32x12 mm	50x50x17 mm
Ambient temperature [°C]	-20 ... +60	-20 ... +45
Ambient temperature with flexible cable installation [°C]	-5 ... +60	-5 ... +45
CE mark (see declaration of conformity)	In accordance with EU EMC directive	
	In accordance with EU Low Voltage Directive	
Certification	c UL us - Listed (OL) C-Tick	

Materials		
Size	20x32x12 mm	50x50x17 mm
Housing	Acrylic butadiene styrene	
Cable sheath	Polyurethane	

Ordering data							
Size	Working range [mm]	Switching element function	Switch output	Electrical connection			
				Cable		Plug	
				Part No.	Type	Part No.	Type
20x32x12 mm							
	70 ... 3,000	Switchable	PNP	537 760	SOEL-RSP-Q20-PP-K-2L-TI	537 759	SOEL-RSP-Q20-PP-S-2L-TI
			NPN	537 762	SOEL-RSP-Q20-NP-K-2L-TI	537 761	SOEL-RSP-Q20-NP-S-2L-TI
50x50x17 mm							
	20,000	Antivalent	PNP	537 769	SOEL-RSP-Q50-PA-K-3L	537 767	SOEL-RSP-Q50-PA-S-3L
			NPN	537 770	SOEL-RSP-Q50-NA-K-3L	537 768	SOEL-RSP-Q50-NA-S-3L

Laser distance sensors SOEL-RTD


Technical data

General technical data			
Size	50x50x17 mm		
Working range	[mm]	38 ... 58	44 ... 84 80 ... 300
Position measuring range	[mm]	20	40 220
Displacement resolution	[mm]	0.007	0.02 0.3
Light type	Laser, red		
Laser protection class	2		
Setting options	–		Teach-in Teach-in via electrical connection

Electrical data			
Size	50x50x17 mm		
Working range	[mm]	38 ... 58	44 ... 84 80 ... 300
Analogue output	[mA]	–	– 4 ... 20
	[V]	0 ... 10	0 ... 10 –
Electrical connection	Plug M12x1, 4-pin		Plug M12x1, 4-pin Plug M12x1, 8-pin
Operating voltage range	[V DC]	18 ... 28	18 ... 28 16 ... 30
Max. load current on the analogue voltage output	[mA]	3,0	3,0 –
Max. output current	[mA]	–	– 100
Measuring frequency	[Hz]	40	40 –
Max. switching frequency	[Hz]	–	– 1,000
Protection against short circuit	Pulsed		
Protection against polarity reversal	For operating voltage		For operating voltage For all electrical connections
Protection class	IP67		

Operating and environmental conditions	
Size	50x50x17 mm
Ambient temperature	[°C] 0 ... 45
CE mark (see declaration of conformity)	In accordance with EU EMC directive
	In accordance with EU Low Voltage Directive
Certification	c UL us - Listed (OL)
	C-Tick

Materials	
Size	50x50x17 mm
Housing	Acrylic butadiene styrene

Ordering data						
Size	Working range [mm]	Switching element function	Switch output	Analogue output	Electrical connection	
					Plug	
					Part No.	Type
50x50x17 mm						
	38 ... 58	–	–	0 ... 10 V	549 315	SOEL-RTD-Q50-PU-S-2L-20
	44 ... 84	–	–	0 ... 10 V	549 316	SOEL-RTD-Q50-PU-S-2L-40
	80 ... 300	Switchable	2x PNP	4 ... 20 mA	537 823	SOEL-RTD-Q50-PP-S-7L

Colour sensors SOEC


Technical data

General technical data	
Size	50x50x17 mm
Working range [mm]	12 ... 32
Light type	White
Setting options	Teach-in Teach-in via electrical connection

Electrical data	
Size	50x50x17 mm
Electrical connection	Plug M12x1, 8-pin
Operating voltage range [V DC]	10 ... 30
Max. output current [mA]	100
Max. switching frequency [Hz]	500
Protection against short circuit	Pulsed
Protection against polarity reversal	For all electrical connections
Protection class	IP67

Materials	
Size	50x50x17 mm
Housing	Acrylic butadiene styrene

Operating and environmental conditions	
Size	50x50x17 mm
Ambient temperature [°C]	-10 ... +55
CE mark (see declaration of conformity)	In accordance with EU EMC directive
	In accordance with EU Low Voltage Directive
Certification	c UL us - Listed (OL)
	C-Tick

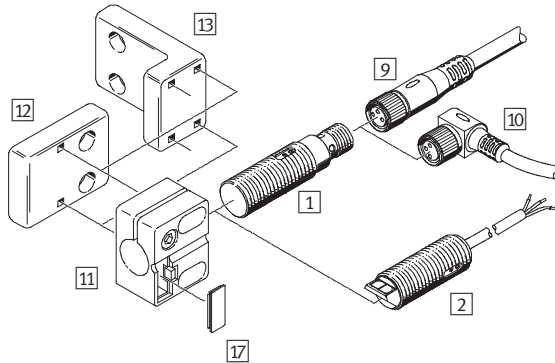
Ordering data				
Size	Working range [mm]	Switching element function	Switch output	Electrical connection
				Plug Part No. Type
50x50x17 mm				
	12 ... 32	Light switching	3x PNP	538 236 SOEC-RT-Q50-PS-S-7L

Sensors SOE..., opto-electronic

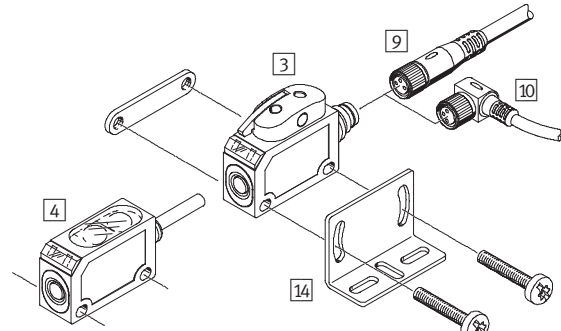
Peripherals overview

Peripherals overview

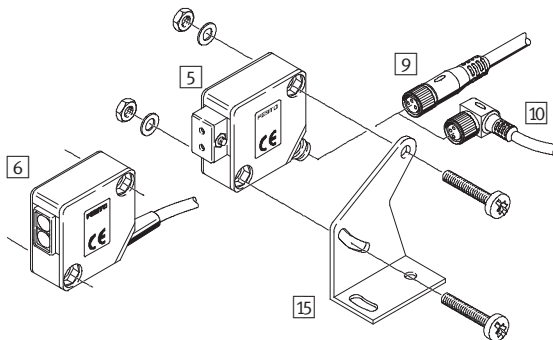
Round design, Ø 4 mm, M12, M18, M18W



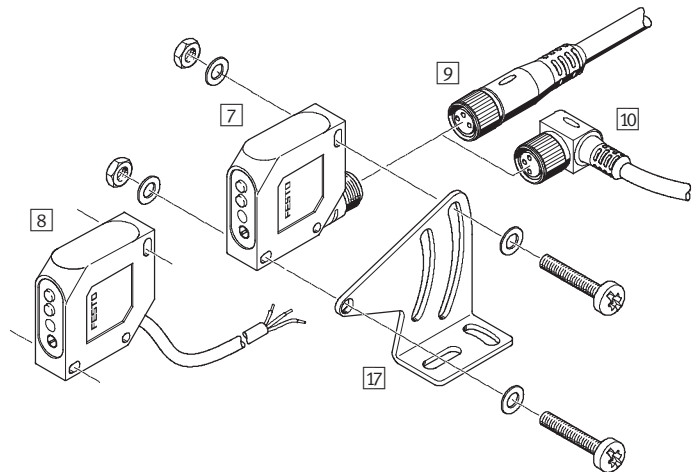
Block design, 20x32x12 mm



Block design, 30x30x15 mm



Block design, 50x50x17 mm



Mounting attachments and accessories

Sensors

- 1 Round design, Ø 4 mm, M12, M18..., with plug
- 2 Round design, Ø 4 mm, M12, M18..., with cable
- 3 Block design, 20x32x12 mm, with plug
- 4 Block design, 20x32x12 mm, with cable
- 5 Block design, 30x30x15 mm, with plug
- 6 Block design, 30x30x15 mm, with cable
- 7 Block design, 50x50x17 mm, with plug
- 8 Block design, 50x50x17 mm, with cable

Connecting cables

- 9 NEBU-M...G...
SIM-M...-...G
- 10 NEBU-M...W...
SIM-M...-...W

Sensor retainers

- 11 SIEZ-NB-...
- 12 SIEZ-UV
- 13 SIEZ-UH

Mounting attachments and accessories

Mounting brackets

- 14 SOEZ-HW-Q20
- 15 SOEZ-HW-Q30
- 16 SOEZ-HW-Q50

Inscription label

- 17 SIEZ-LB

Fibre-optic cables, polymer

- SOEZ-LLK-RT, diffuse sensor
- SOEZ-LLK-SE, through-beam sensor

Fibre-optic cables, glass fibre

- SOEZ-LLG-RT, diffuse sensor
- SOEZ-LLG-SE, through-beam sensor



Reflectors



- Reflector
- Reflector foil
- Reflector for laser light

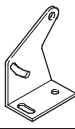




Sensors SOE..., opto-electronic

Accessories




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Ordering data – Connecting cables M8x1				
Technical data → Internet: nebu				
	Number of wires	Cable length [m]	Part No.	Type
Straight plug socket				
	3	2.5	541 333	NEBU-M8G3-K-2.5-LE3
		5	541 334	NEBU-M8G3-K-5-LE3
	4	2.5	541 342	NEBU-M8G4-K-2.5-LE4
		5	541 343	NEBU-M8G4-K-5-LE4
Angled plug socket				
	3	2.5	541 338	NEBU-M8W3-K-2.5-LE3
		5	541 341	NEBU-M8W3-K-5-LE3
	4	2.5	541 344	NEBU-M8W4-K-2.5-LE4
		5	541 345	NEBU-M8W4-K-5-LE4




Ordering data – Connecting cables M12x1				
Technical data → Internet: nebu, sim				
	Number of wires	Cable length [m]	Part No.	Type
Straight plug socket				
	3	2.5	541 363	NEBU-M12G5-K-2.5-LE3
		5	541 364	NEBU-M12G5-K-5-LE3
	4	5	541 328	NEBU-M12G5-K-5-LE4
		2	525 616	SIM-M12-8GD-2-PU
	8	5	525 618	SIM-M12-8GD-5-PU
Angled plug socket				
	3	2.5	541 367	NEBU-M12W5-K-2.5-LE3
		5	541 370	NEBU-M12W5-K-5-LE3
	4	5	541 329	NEBU-M12W5-K-5-LE4

Ordering data – Mounting attachments			
	For design	Part No.	Type
Mounting bracket			
	Q20	537 785	SOEZ-HW-Q20
	Q30	165 355	SOEZ-HW-Q30
	Q50	537 786	SOEZ-HW-Q50
Sensor retainer			
	4	538 343	SIEZ-NB-4
	M12	538 347	SIEZ-NB-12
	M18, M18W	538 349	SIEZ-NB-18
	M12, M18, M18W	538 354	SIEZ-UH
	M12, M18, M18W	538 355	SIEZ-UV

Ordering data – Mounting attachments			
	For design	Part No.	Type
Inscription label			
	M12, M18, M18W, M30	538 353	SIEZ-LB

Ordering data – Fibre-optic cables			
	Use	Part No.	Type
Polymer			
	RT ¹⁾	165 358	SOEZ-LLK-RT-2,0-M6
	S/E ²⁾	165 360	SOEZ-LLK-SE-2,0-M4
Glass fibre			
	RT ¹⁾	165 356	SOEZ-LLG-RT-0,5-M6
	S/E ²⁾	165 357	SOEZ-LLG-SE-0,5-M4
Fibre-optic cable cutter			
	For polymer fibre-optic cables	36 479	SOE-LKS

- 1) Diffuse sensor
- 2) Through-beam sensor

Ordering data – Reflectors			
	Size [mm]	Part No.	Type
Reflector			
	∅ 20	165 363	SOEZ-RFS-20
	∅ 40	165 364	SOEZ-RFS-40
	∅ 84	165 365	SOEZ-RFS-80
Reflector foil			
	100 x 100	165 362	SOEZ-RFF-100
Reflector for laser light			
	50 x 50	537 788	SOEZ-RFL-50
	10 x 50	537 787	SOEZ-RFL-10