

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/catalog/soe

Product overview						
Variant	Type	Operating voltage	Switch output	Analogue output	Design	➔ Page/Internet
Diffuse sensor	SOEG-RT Basic version	10 ... 36 V DC 10 ... 30 V DC	PNP NPN	–	Round Block-shaped	4
	SOEG-RTZ With cylindrical light beam		PNP NPN	–	Round	6
	Sensor with background suppression	SOEG-RTH	10 ... 36 V DC 10 ... 30 V DC	PNP NPN	–	Round Block-shaped
Retro-reflective sensor	SOEG-RSP Basic version	10 ... 36 V DC 10 ... 30 V DC	PNP NPN	–	Round Block-shaped	9
	SOEG-RSG For transparent objects		PNP NPN	–	Block-shaped	11
Through-beam sensor	SOEG-S Transmitter	10 ... 36 V DC 10 ... 30 V DC	–	–	Round Block-shaped	12
	SOEG-E Receiver	10 ... 36 V DC 10 ... 30 V DC	PNP NPN	–	Round Block-shaped	12
Fibre-optic unit	SOEG-L Basic version	10 ... 30 V DC	PNP NPN	–	Block-shaped	14
Distance sensor	SOEG-RTD	15 ... 30 V DC	PNP	0 ... 10 V	Block-shaped	15
Laser diffuse sensor	SOEL-RT Contrast sensor	10 ... 30 V DC	PNP NPN	–	Block-shaped	16
Laser sensor with background suppression	SOEL-RTH		PNP NPN	–	Block-shaped	16
Laser retro-reflective sensor	SOEL-RSP	10 ... 30 V DC	PNP NPN	–	Block-shaped	17
Laser distance sensor	SOEL-RTD	16 ... 30 V DC	2x PNP	4 ... 20 mA	Block-shaped	18
		18 ... 28 V DC	–	0 ... 10 V		

Colour sensor	SOEC-RT	10 ... 30 V DC	3x PNP	-	Block-shaped	19
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Sensors SOE..., opto-electronic

Type codes

		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	TPE-U (PUR)						

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	537671	SOEG-RT-4-PS-K-L	537673	SOEG-RT-4-PS-S-L
			NPN	537674	SOEG-RT-4-NS-K-L	537676	SOEG-RT-4-NS-S-L
M5							
	50	Light switching	PNP	537677	SOEG-RT-M5-PS-K-L	537679	SOEG-RT-M5-PS-S-L
			NPN	537680	SOEG-RT-M5-NS-K-L	537682	SOEG-RT-M5-NS-S-L
M12							
	70 ... 300	Light switching	PNP	547908	SOEG-RT-M12-PS-K-2L	547909	SOEG-RT-M12-PS-S-2L
			NPN	547906	SOEG-RT-M12-NS-K-2L	547907	SOEG-RT-M12-NS-S-2L
M18, beam exit straight							
	40 ... 600	Antivalent	PNP	547912	SOEG-RT-M18-PA-K-2L	547913	SOEG-RT-M18-PA-S-2L
			NPN	547910	SOEG-RT-M18-NA-K-2L	547911	SOEG-RT-M18-NA-S-2L
M18, beam exit angled							
	0 ... 600	Light switching	PNP	537701	SOEG-RT-M18W-PS-K-2L	537702	SOEG-RT-M18W-PS-S-2L
			NPN	537717	SOEG-RT-M18W-NS-K-2L	537718	SOEG-RT-M18W-NS-S-2L
20x32x12 mm							
	10 ... 300	Switchable	PNP	537732	SOEG-RT-Q20-PP-K-2L-TI	537731	SOEG-RT-Q20-PP-S-2L-TI
			NPN	537734	SOEG-RT-Q20-NP-K-2L-TI	537733	SOEG-RT-Q20-NP-S-2L-TI
30x30x15 mm							
	0 ... 600	Light switching	PNP	165350	SOEG-RT-Q30-PS-K-2L	165351	SOEG-RT-Q30-PS-S-2L
			NPN	165348	SOEG-RT-Q30-NS-K-2L	165349	SOEG-RT-Q30-NS-S-2L

Diffuse sensors SOEG-RTZ, with cylindrical light beam

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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	TPE-U (PUR)	

Ordering data					
Size	Working range [mm]	Switching element function	Switch output	Electrical connection	
				Cable	Part No. Type
∅ 4 mm					
	10	Light switching	PNP	537672	SOEG-RTZ-4-PS-K-L
			NPN	537675	SOEG-RTZ-4-NS-K-L
M5					
	10	Light switching	PNP	537678	SOEG-RTZ-M5-PS-K-L
			NPN	537681	SOEG-RTZ-M5-NS-K-L

Sensors SOEG-RTH, with background suppression

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
	Plug	M12x1, 3-pin		M8x1, 4-pin	M12x1, 3-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


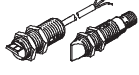
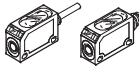
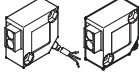
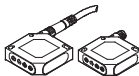
Operating and environmental conditions					
Size	M18x1, straight	M18x1, angled	20x32x12 mm	30x30x15 mm	50x50x17 mm
Ambient temperature [°C]	-25 ... +55		-20 ... +60	-25 ... +55	-20 ... +60
Ambient temperature with flexible cable installation [°C]	-5 ... +55		-5 ... +60	-5 ... +55	-5 ... +60
CE mark (see 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	TPE-U (PUR)				

Sensors SOEG-RTH, with background suppression

FESTO

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	537687	SOEG-RTH-M18-PS-K-2L	537689	SOEG-RTH-M18-PS-S-2L
			NPN	537705	SOEG-RTH-M18-NS-K-2L	537707	SOEG-RTH-M18-NS-S-2L
M18, beam exit angled							
	10 ... 120	Light switching	PNP	537688	SOEG-RTH-M18W-PS-K-2L	537690	SOEG-RTH-M18W-PS-S-2L
			NPN	537706	SOEG-RTH-M18W-NS-K-2L	537708	SOEG-RTH-M18W-NS-S-2L
20x32x12 mm							
	25 ... 100	Switchable	PNP	537724	SOEG-RTH-Q20-PP-K-2L-TI	537723	SOEG-RTH-Q20-PP-S-2L-TI
			NPN	537726	SOEG-RTH-Q20-NP-K-2L-TI	537725	SOEG-RTH-Q20-NP-S-2L-TI
30x30x15 mm							
	15 ... 150	Light switching	PNP	537719	SOEG-RTH-Q30-PS-K-2L	537720	SOEG-RTH-Q30-PS-S-2L
			NPN	537721	SOEG-RTH-Q30-NS-K-2L	537722	SOEG-RTH-Q30-NS-S-2L
50x50x17 mm							
	30 ... 300	Light switching	PNP	537771	SOEG-RTH-Q50-PA-K-3L	537773	SOEG-RTH-Q50-PA-S-3L
			NPN	537772	SOEG-RTH-Q50-NA-K-3L	537774	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

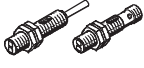
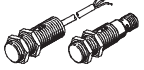
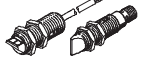

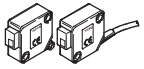

Operating and environmental conditions						
Size	M12x1	M18x1, straight	M18x1, angled	20x32x12 mm	30x30x15 mm	50x50x17 mm
Ambient temperature [°C]	-25 ... +55			-20 ... +60	-25 ... +55	-20 ... +60
Ambient temperature with flexible cable installation [°C]	-5 ... +55			-5 ... +60	-5 ... +55	-5 ... +60
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

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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	537683	SOEG-RSP-M12-PS-K-2L	537684	SOEG-RSP-M12-PS-S-2L
			NPN	537685	SOEG-RSP-M12-NS-K-2L	537686	SOEG-RSP-M12-NS-S-2L
M18, beam exit straight							
	2,000	Dark switching	PNP	537697	SOEG-RSP-M18-PS-K-2L	537699	SOEG-RSP-M18-PS-S-2L
			NPN	537713	SOEG-RSP-M18-NS-K-2L	537715	SOEG-RSP-M18-NS-S-2L
M18, beam exit angled							
	2,000	Dark switching	PNP	537698	SOEG-RSP-M18W-PS-K-2L	537700	SOEG-RSP-M18W-PS-S-2L
			NPN	537714	SOEG-RSP-M18W-NS-K-2L	537716	SOEG-RSP-M18W-NS-S-2L
20x32x12 mm							
	2,500	Switchable	PNP	537750	SOEG-RSP-Q20-PP-K-2L-TI	537749	SOEG-RSP-Q20-PP-S-2L-TI
			NPN	537752	SOEG-RSP-Q20-NP-K-2L-TI	537751	SOEG-RSP-Q20-NP-S-2L-TI
	2,500	Switchable	PNP	-	-	537784	SOEG-RSP-Q20-PS-S-2L ¹⁾
30x30x15 mm							
	0 ... 2,000	Dark switching	PNP	165330	SOEG-RSP-Q30-PS-K-2L	165331	SOEG-RSP-Q30-PS-S-2L
			NPN	165328	SOEG-RSP-Q30-NS-K-2L	165329	SOEG-RSP-Q30-NS-S-2L
50x50x17 mm							
	0 ... 5,500	Antivalent	PNP	537763	SOEG-RSP-Q50-PA-K-3L	537765	SOEG-RSP-Q50-PA-S-3L
			NPN	537764	SOEG-RSP-Q50-NA-K-3L	537766	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

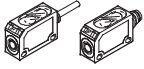
Technical data

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	TPE-U (PUR)

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	537754	SOEG-RSG-Q20-PP-K-2L-TI	537753	SOEG-RSG-Q20-PP-S-2L-TI

Through-beam sensors SOEG-S/E

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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	


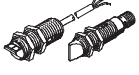
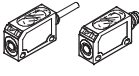
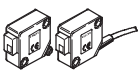

Operating and environmental conditions						
Size	M18x1, straight	M18x1, angled	20x32x12 mm	30x30x15 mm	50x50x17 mm	
Ambient temperature [°C]	-25 ... +55		-20 ... +60	-25 ... +55	-20 ... +60	
Ambient temperature with flexible cable installation [°C]	-5 ... +55		-5 ... +60	-5 ... +55	-5 ... +60	
CE mark (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	TPE-U (PUR)					

Through-beam sensors SOEG-S/E

Technical data

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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	–	–	537691	SOEG-S-M18-K-L	537703	SOEG-S-M18-S-L
		Receiver	Antivalent	PNP	537692	SOEG-E-M18-PA-K-2L	537704	SOEG-E-M18-PA-S-2L
				NPN	537709	SOEG-E-M18-NA-K-2L	537711	SOEG-E-M18-NA-S-2L
M18, beam exit angled								
	20,000	Transmitter	–	–	537693	SOEG-S-M18W-K-L	537695	SOEG-S-M18W-S-L
		Receiver	Antivalent	PNP	537694	SOEG-E-M18W-PA-K-2L	537696	SOEG-E-M18W-PA-S-2L
				NPN	537710	SOEG-E-M18W-NA-K-2L	537712	SOEG-E-M18W-NA-S-2L
20x32x12 mm								
	6,000	Transmitter	–	–	537744	SOEG-S-Q20-K-L-TI	537743	SOEG-S-Q20-S-L-TI
		Receiver	Switchable	PNP	537746	SOEG-E-Q20-PP-K-2L-TI	537745	SOEG-E-Q20-PP-S-2L-TI
				NPN	537748	SOEG-E-Q20-NP-K-2L-TI	537747	SOEG-E-Q20-NP-S-2L-TI
30x30x15 mm								
	2,000	Transmitter	–	–	165352	SOEG-S-Q30-K-L	165353	SOEG-S-Q30-S-L
		Receiver	Dark switching	PNP	165322	SOEG-E-Q30-PS-K-2L	165323	SOEG-E-Q30-PS-S-2L
				NPN	165320	SOEG-E-Q30-NS-K-2L	165321	SOEG-E-Q30-NS-S-2L
50x50x17 mm								
	15,000	Transmitter	–	–	537779	SOEG-S-Q50-K-L	537781	SOEG-S-Q50-S-L
		Receiver	Antivalent	PNP	537780	SOEG-E-Q50-PA-K-3L	537782	SOEG-E-Q50-PA-S-3L

Fibre-optic units SOEG-L

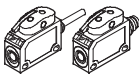
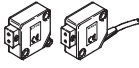
Technical data

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	TPE-U (PUR)	

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	537740	SOEG-L-Q20-PP-K-2L-TI	537739	SOEG-L-Q20-PP-S-2L-TI
			NPN	537742	SOEG-L-Q20-NP-K-2L-TI	537741	SOEG-L-Q20-NP-S-2L-TI
30x30x15 mm							
	0 ... 120	Antivalent	PNP	165326	SOEG-L-Q30-P-A-K-2L	165327	SOEG-L-Q30-P-A-S-2L
			NPN	165324	SOEG-L-Q30-NA-K-2L	165325	SOEG-L-Q30-NA-S-2L

Distance sensors SOEG-RTD

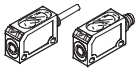
Technical data

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	TPE-U (PUR)

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	537758	SOEG-RTD-Q20-PP-K-2L-TI	537757	SOEG-RTD-Q20-PP-S-2L-TI

Laser sensors SOEL-RT...

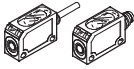
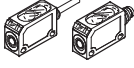
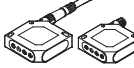
Technical data

General technical data			
Method of measurement	Contrast sensor (diffuse)		With background suppression
Size	20x32x12 mm	20x32x12 mm	50x50x17 mm
Working range [mm]	40 ... 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	TPE-U (PUR)

Ordering data					
Size	Working range [mm]	Switching element function	Switch output	Electrical connection	
				Cable	Plug
				Part No.	Type
20x32x12 mm, contrast sensor (diffuse)					
	40 ... 150	Switchable	PNP	537736 SOEL-RT-Q20-PP-K-2L-TI	537735 SOEL-RT-Q20-PP-S-2L-TI
			NPN	537738 SOEL-RT-Q20-NP-K-2L-TI	537737 SOEL-RT-Q20-NP-S-2L-TI
20x32x12 mm, with background suppression					
	30 ... 110	Switchable	PNP	537729 SOEL-RTH-Q20-PP-K-2L-TI	537727 SOEL-RTH-Q20-PP-S-2L-TI
			NPN	537730 SOEL-RTH-Q20-NP-K-2L-TI	537728 SOEL-RTH-Q20-NP-S-2L-TI
50x50x17 mm, with background suppression					
	50 ... 300	Antivalent	PNP	537777 SOEL-RTH-Q50-PA-K-3L	537775 SOEL-RTH-Q50-PA-S-3L
			NPN	537778 SOEL-RTH-Q50-NA-K-3L	537776 SOEL-RTH-Q50-NA-S-3L

Laser retro-reflective sensors SOEL-RSP

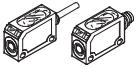

Technical data

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	TPE-U (PUR)	

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	537760	SOEL-RSP-Q20-PP-K-2L-TI	537759	SOEL-RSP-Q20-PP-S-2L-TI
			NPN	537762	SOEL-RSP-Q20-NP-K-2L-TI	537761	SOEL-RSP-Q20-NP-S-2L-TI
50x50x17 mm							
	20,000	Antivalent	PNP	537769	SOEL-RSP-Q50-PA-K-3L	537767	SOEL-RSP-Q50-PA-S-3L
			NPN	537770	SOEL-RSP-Q50-NA-K-3L	537768	SOEL-RSP-Q50-NA-S-3L

Laser distance sensors SOEL-RTD

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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	549315	SOEL-RTD-Q50-PU-S-2L-20
	44 ... 84	–	–	0 ... 10 V	549316	SOEL-RTD-Q50-PU-S-2L-40
	80 ... 300	Switchable	2x PNP	4 ... 20 mA	537823	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	538236 SOEC-RT-Q50-PS-S-7L

Sensors SOE..., opto-electronic

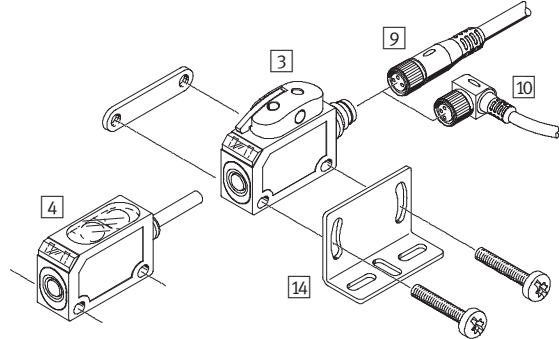
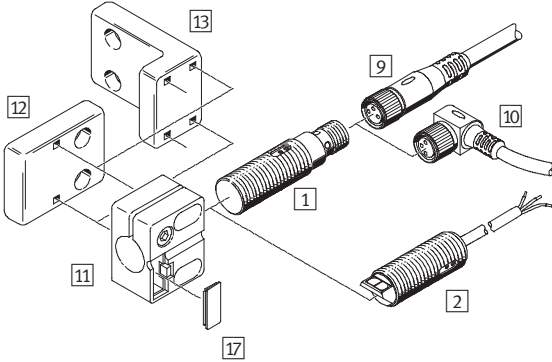
Peripherals overview

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Peripherals overview

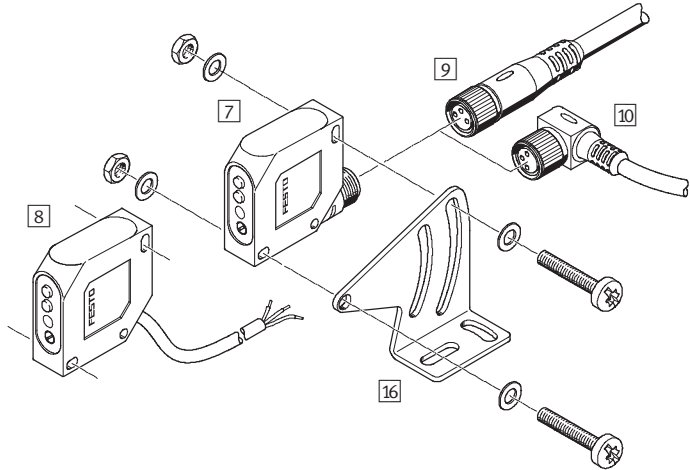
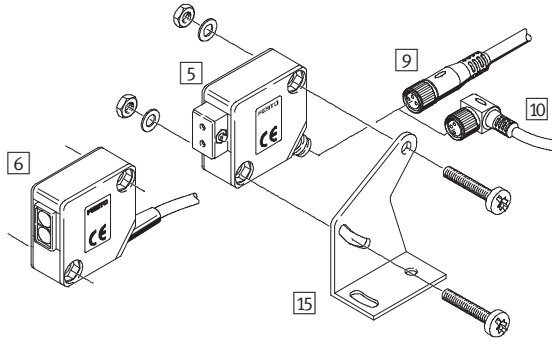
Round design, Ø 4 mm, M12, M18, M18W

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 | Same, with cable |
| 3 | Block design, 20x32x12 mm, with plug |
| 4 | Same, with cable |
| 5 | Block design, 30x30x15 mm, with plug |
| 6 | Same, with cable |
| 7 | Block design, 50x50x17 mm, with plug |
| 8 | Same, with cable |

Connecting cables

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

Sensor brackets

- | | |
|----|-------------|
| 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

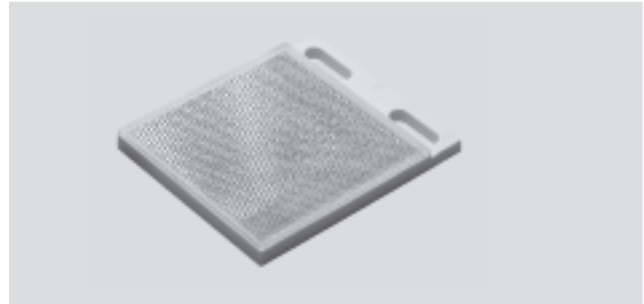
- Reflector
- Reflector foil
- Reflector for laser light

Sensors SOE..., opto-electronic

Accessories



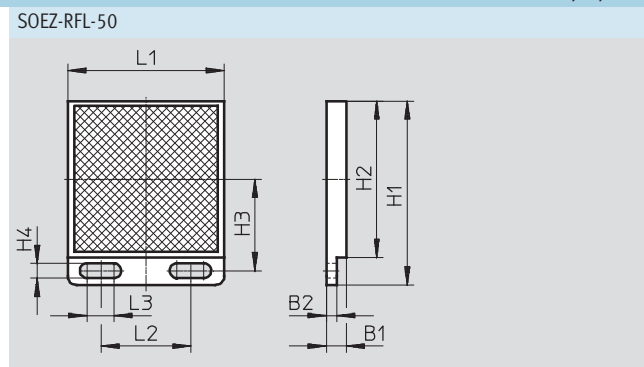
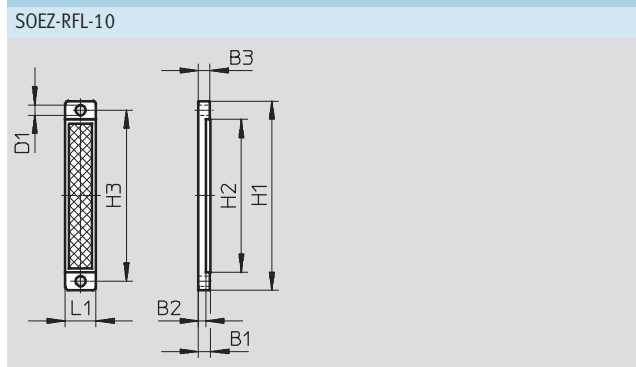
Reflector for laser light



General technical data		SOEZ-RFL-10	SOEZ-RFL-50
Type		SOEZ-RFL-10	SOEZ-RFL-50
Method of measurement		Reflector for retro-reflective sensors	
Type of mounting		Via through-hole	
Ambient temperature	[°C]	-40 ... +70	
Product weight	[g]	2	15
Note on materials		Free of copper and PTFE	
Information on housing materials		PMMA, ABS	
Corrosion resistance ¹⁾		4	

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

Dimensions Download CAD Data → www.festo.com/us/cad



Type	B1	B2	B3	D1 ∅	H1	H2	H3	H4	L1	L2	L3
SOEZ-RFL-10	4 ^{+0.3}	2.3	3.7	3.4	62	47.4	36	-	10	-	-
SOEZ-RFL-50	6.5 ^{+0.5}	3.4	-	-	60.3	51.25	30	4.8	51.4	29.5	8.8

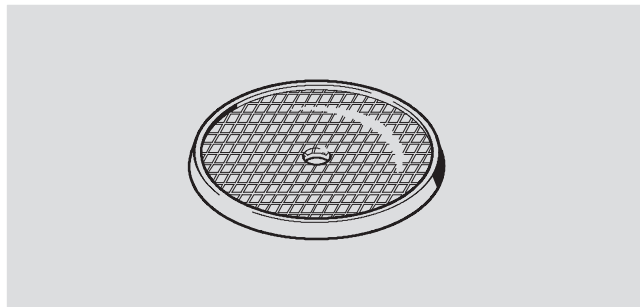
Ordering data – Reflector for laser light		Part No.	Type
	[mm]		
	10 x 50	537787	SOEZ-RFL-10
	50 x 50	537788	SOEZ-RFL-50

Sensors SOE..., opto-electronic

Accessories

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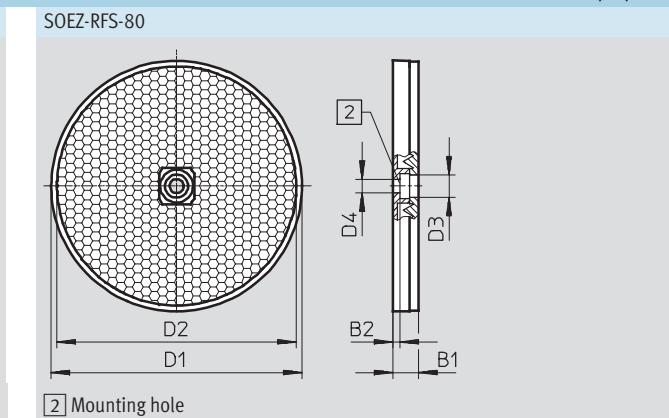
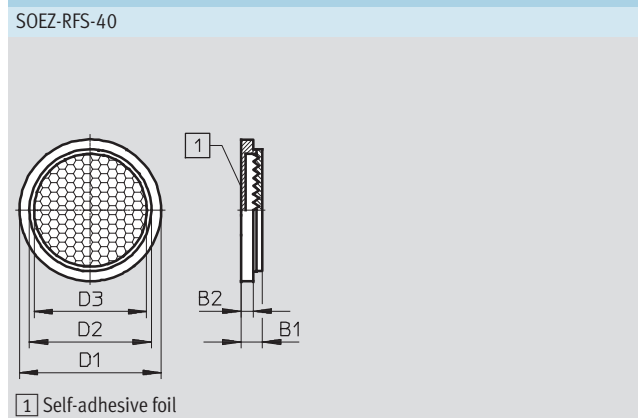
Reflector



General technical data			
Type	SOEZ-RFS-20	SOEZ-RFS-40	SOEZ-RFS-80
Method of measurement	Reflector		
Type of mounting	Bonded		Via through-hole
Ambient temperature [°C]	-40 ... +70		
Product weight [g]	3	9	30
Note on materials	Free of copper and PTFE		
Information on housing materials	PMMA		
Corrosion resistance ¹⁾	4		

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

Dimensions Download CAD Data → www.festo.com/us/cad



Type	B1	B2	D1	D2	D3	D4
			∅	∅	∅	∅
SOEZ-RFS-40	7±0.3	4	46.5	40	37	-
SOEZ-RFS-80	8.5	2.5	82.1	78.3	7.5	4.6



Ordering data – Reflector



	[mm]	Part No.	Type
	20	165363	SOEZ-RFS-20
	40	165364	SOEZ-RFS-40
	80	165365	SOEZ-RFS-80

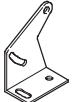
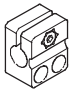
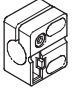


Sensors SOE..., opto-electronic


Accessories


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Ordering data – Connecting cables M8x1				
Technical data → Internet: nebu				
	Number of wires	Cable length [m]	Part No.	Type
Straight socket				
	3	2.5	541333	NEBU-M8G3-K-2.5-LE3
		5	541334	NEBU-M8G3-K-5-LE3
	4	2.5	541342	NEBU-M8G4-K-2.5-LE4
5		541343	NEBU-M8G4-K-5-LE4	
Angled socket				
	3	2.5	541338	NEBU-M8W3-K-2.5-LE3
		5	541341	NEBU-M8W3-K-5-LE3
	4	2.5	541344	NEBU-M8W4-K-2.5-LE4
		5	541345	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 socket				
	3	2.5	541363	NEBU-M12G5-K-2.5-LE3
		5	541364	NEBU-M12G5-K-5-LE3
	4	5	541328	NEBU-M12G5-K-5-LE4
		8	2	525616
		5	525618	SIM-M12-8GD-5-PU
Angled socket				
	3	2.5	541367	NEBU-M12W5-K-2.5-LE3
		5	541370	NEBU-M12W5-K-5-LE3
	4	5	541329	NEBU-M12W5-K-5-LE4

Ordering data – Mounting attachments			
	For design	Part No.	Type
Mounting bracket			
	Q20	537785	SOEZ-HW-Q20
	Q30	165355	SOEZ-HW-Q30
	Q50	537786	SOEZ-HW-Q50
Sensor bracket			
	4	538343	SIEZ-NB-4
	M12	538347	SIEZ-NB-12
	M18, M18W	538349	SIEZ-NB-18
	M12, M18, M18W	538354	SIEZ-UH
	M12, M18, M18W	538355	SIEZ-UV


Ordering data – Mounting attachments			
	For design	Part No.	Type
Inscription label			
	M12, M18, M18W, M30	538353	SIEZ-LB

Ordering data – Fibre-optic cables			
	Use	Part No.	Type
Polymer			
	RT ¹⁾	165358	SOEZ-LLK-RT-2,0-M6
	S/E ²⁾	165360	SOEZ-LLK-SE-2,0-M4

Ordering data – Fibre-optic cables			
	Use	Part No.	Type
Glass fibre			
	RT ¹⁾	165356	SOEZ-LLG-RT-0,5-M6
	S/E ²⁾	165357	SOEZ-LLG-SE-0,5-M4

Ordering data – Fibre-optic cable cutter			
	For design	Part No.	Type
	For polymer fibre-optic cables	36479	SOE-LKS

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

Ordering data – Reflector foil			
	Size [mm]	Part No.	Type
Reflector foil			
	100 x 100	165362	SOEZ-RFF-100

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