Fibre-optic units SOE4

Product overview

- High precision fibre-optic units
- Switching frequencies up to 8000 Hz
- Working ranges up to 2000 mm
- Variants with LED display, switching and analogue outputs
- Setting via teach-in
- Comprehensive range of fibre-optic cables

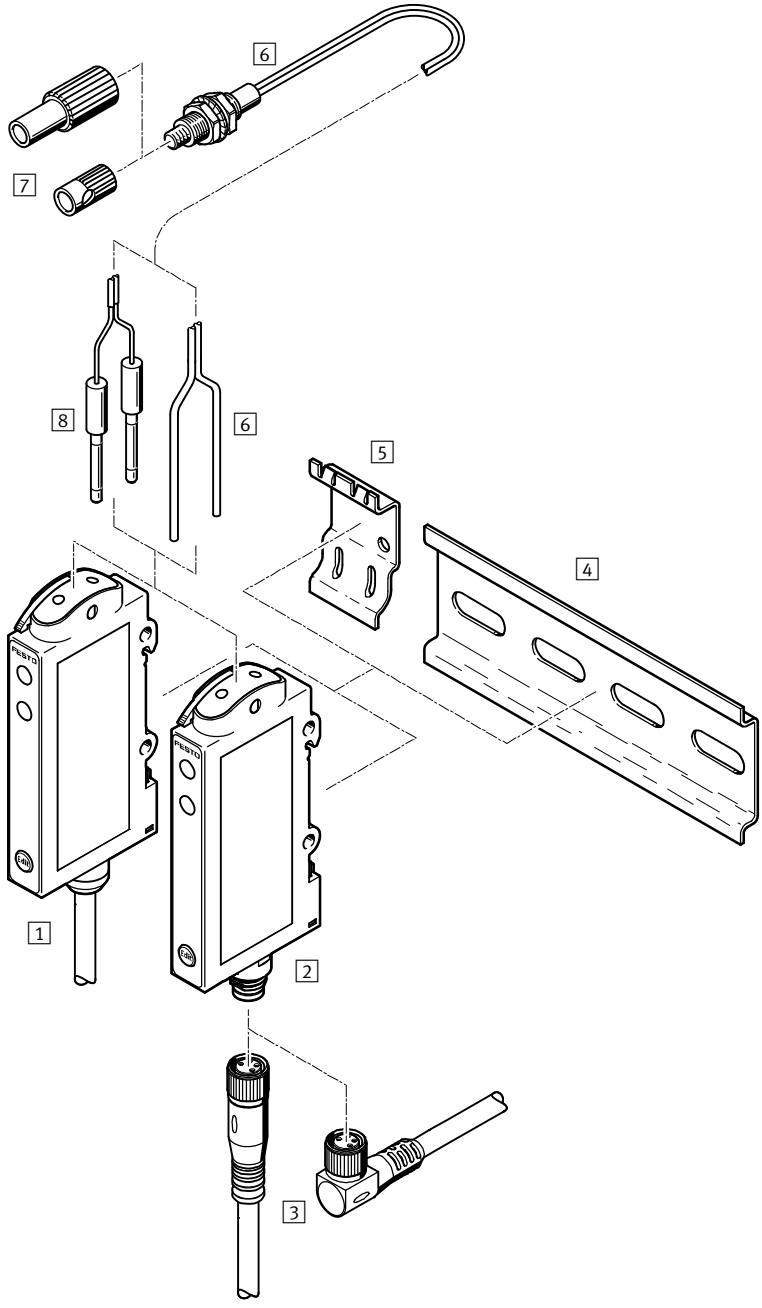
Detailed product information
➔ www.festo.com/catalogue/soe4

Product overview

Version	Type	Type of display	Timer function	Switching output	Analogue output	➔ Page/Internet
Fibre-optic unit	SOE4-FO-L	LED	–	PNP NPN	–	4
	SOE4-FO-D	LED display	1 … 2000 ms	PNP NPN	–	4
	SOE4-FO-D	LED display	1 … 2000 ms	PNP NPN	0 … 10 V	4

Fibre-optic units SOE4

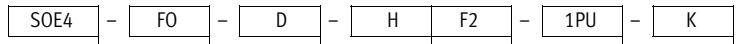
Peripherals overview



Accessories		Brief description	→ Page/Internet
1	Fibre-optic unit SOE4-...-K	With cable	4
2	Fibre-optic unit SOE4-...-M8	With plug M8x1, 4-pin	4
3	Connecting cable	With socket M8x1, 4-pin	8
4	Mounting rail to DIN EN 60715	For wall mounting of more than 2 fibre-optic units	–
5	Adapter plate SXE3-W	For wall mounting of max. 2 fibre-optic units	8
6	Fibre-optic cable	As diffuse sensor, through-beam sensor, fixed focus or series designs	5
7	Ancillary lens	For adapting the optical characteristics of fibre-optic cables	7
8	Adapter	For fibre-optic cables with O.D. 1.0 and 1.25 ... 1.3 mm	7
–	Fibre-optic cutter	For fibre-optic cables made from plastic with O.D. 1.0 and 1.3 as well as 2.2 mm	7

Fibre-optic units SOE4

Type codes



Type	
SOE4	Fibre-optic unit

Input	
FO	Fibre-optic cable

Type of display	
L	LED
D	LED display

Type of mounting	
H	H-rail mounting or via through-holes

Fibre-optic cable connection	
F2	Fibre-optic cable ∅ 2 mm

Electrical output	
1P	1 switching output PNP
1N	1 switching output NPN
1PU	1 switching output PNP and 0 ... 10 V analogue
1NU	1 switching output NPN and 0 ... 10 V analogue

Electrical connection	
K	Cable, 2 m long
M8	Plug M8x1

Fibre-optic units SOE4

Technical data

FESTO

General technical data			
Type of display		LED	LED display
Working range		Depends on the measuring mode and fibre-optic cables, value tables ➔ 5, 6	Depends on the measuring mode and fibre-optic cables, value tables for standard mode ➔ 5, 6 Standard mode: 100% Fine mode: approx. 40% Fast mode: approx. 40% High-distance mode: approx. 190%
Mutual interference		–	Protected against interference with up to four devices mounted directly next to one another
Light type		Red	
Setting options		Teach-in Teach-in via electrical connection	

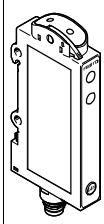
Electrical data			
Type of display		LED	LED display
Max. switching frequency	[Hz]	1500	Standard mode: 1000 Fine mode: 125 Fast mode: 8000 High-distance mode: 125
Timer function	[ms]	–	1 … 2000
Operating voltage range	[V DC]	10 … 30	
Max. output current	[mA]	100	
Protection against short circuit		Pulsed	
Protection against polarity reversal		For operating voltage	
Protection class		IP64	

Operating and environmental conditions		
Ambient temperature	[°C]	–20 … +60
Ambient temperature with flexible cable installation	[°C]	–5 … +60
CE symbol (see declaration of conformity)		In accordance with EU EMC directive[1)]
Certification		C-UL-US listed (OL)
		C tick

1) For information about the applicability of the component see the manufacturer's EC declaration of conformity at: www.festo.com/sp ➔ User documentation.
If the component is subject to restrictions on usage in residential, office or commercial environments or small businesses, further measures to reduce the emitted interference may be necessary.

Materials	
Housing	Acrylic butadiene styrene
Cable sheath	TPE-U (PUR)

Ordering data

Version	Type of display	Switching output, switching function	Analogue output	Electrical connection	Part No.	Type
	LED	PNP, switchable	–	Cable, 4-wire	**552795**	**SOE4-FO-L-HF2-1P-K**
				Plug M8x1, 4-pin	**552796**	**SOE4-FO-L-HF2-1P-M8**
		NPN, switchable	–	Cable, 4-wire	**552797**	**SOE4-FO-L-HF2-1N-K**
				Plug M8x1, 4-pin	**552798**	**SOE4-FO-L-HF2-1N-M8**
	LED display	PNP, switchable	–	Plug M8x1, 4-pin	**552799**	**SOE4-FO-D-HF2-1P-M8**
		NPN, switchable	–	Plug M8x1, 4-pin	**552800**	**SOE4-FO-D-HF2-1N-M8**
		PNP, switchable	0 … 10 V	Cable, 5-wire	**552801**	**SOE4-FO-D-HF2-1PU-K**
		NPN, switchable	0 … 10 V	Cable, 5-wire	**552802**	**SOE4-FO-D-HF2-1NU-K**

Fibre-optic units SOE4

Accessories

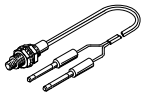
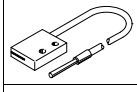
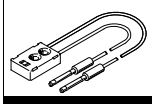
FESTO

Technical data – Fibre-optic cable (diffuse sensor)						
Special feature of fibre-optic cable			Standard	Coaxial	Large working range	Flexible
Working range[1]		[mm]	140	75	200	130
Min. object diameter[2]		[mm]	0.1	0.1	0.1	0.1
Min. bending radius		[mm]	25	15	40	2
Outer ∅		[mm]	2.2	1.25	2.2	1.3
Head size			M6	M4	M6	M4
Protection class			IP66			
Ambient temperature		[°C]	–55 … +70			–40 … +70
Material	Housing		High-alloy stainless steel	Nickel-plated brass	Nickel-plated brass	High-alloy stainless steel
	Fibre-optic cable		Polyethylene			

1) With SOE4-FO-L and SOE4-FO-D in standard mode
2) An attempt was made to obtain a signal at 10% of the range using a copper wire. The smallest wire diameter that was still detected corresponds to the diameter of the smallest detectable object.

Technical data – Fibre-optic cable (diffuse sensor)							
Special feature of fibre-optic cable			High temperature	Precision		Series	Fixed focus
Working range[1]		[mm]	150	12	65	130	2 … 10
Min. object diameter[2]		[mm]	0.1	0.05	0.1	0.15	0.1
Min. bending radius		[mm]	25	10	15	25	25
Outer ∅		[mm]	2.2	1.0	1.25	2.2	2.2
Head size			M6	M3	M4	19x25x6 mm	13x19.6x5 mm
Protection class			IP66				
Ambient temperature		[°C]	–55 … +115	–55 … +70			
Material	Housing		High-alloy stainless steel			Nickel-plated brass	Acrylic butadiene styrene
	Fibre-optic cable		Polyethylene				

1) With SOE4-FO-L and SOE4-FO-D in standard mode
2) An attempt was made to obtain a signal at 10% of the range using a copper wire. The smallest wire diameter that was still detected corresponds to the diameter of the smallest detectable object.

Ordering data – Fibre-optic cable (diffuse sensor)							
Measuring method	Special feature of fibre-optic cable	Outer ∅ [1]	Sleeve length	Fibre-optic cable length			
				1 m		2 m	
		[mm]	[mm]	Part No.	Type	Part No.	Type
	Standard	2.2	–	**552838**	**SOOC-DS-M6-1-R25**	**552836**	**SOOC-DS-M6-2-R25**
			40	**552839**	**SOOC-DS-M6-1-R25-S4**	**552837**	**SOOC-DS-M6-2-R25-S4**
	Coaxial	1.25	–	**–**		**552842**	**SOOC-DS-C-M4-2-R15**
	Large working range	2.2	–	**552841**	**SOOC-DS-H-M6-1-R40**	**552840**	**SOOC-DS-H-M6-2-R40**
	Flexible	1.3	–	–		**552843**	**SOOC-DS-F-M4-2-R2**
	High temperature	2.2	–	–		**552809**	**SOOC-DS-M6-2-R25-T1**
	Precision	1.25	–	**552804**	**SOOC-DS-P-M3-1-R10**	**552844**	**SOOC-DS-P-M3-2-R10**
			40	**–**		**552803**	**SOOC-DS-P-M3-2-R10-S4**
		1	–	**552807**	**SOOC-DS-P-M4-1-R15**	**552805**	**SOOC-DS-P-M4-2-R15**
			40	**552808**	**SOOC-DS-P-M4-1-R15-S4**	**552806**	**SOOC-DS-P-M4-2-R15-S4**
	Series	2.2	–	–		**552810**	**SOOC-DS-M-A11-2-R25**
	Fixed focus	2.2	–	**–**		**552811**	**SOOC-DS-Q-2-R25**

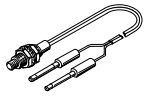
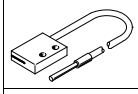
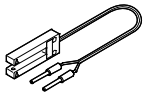
1) The scope of delivery for fibre-optic cables with fibre-optic cable ∅ < 2.2 mm includes an adapter SASA

Technical data – Fibre-optic cable (through-beam sensor)					
Special feature of fibre-optic cable		Standard	Large working range	Flexible	High temperature
Working range[1]	[mm]	400	650	300	400
Min. object diameter[2]	[mm]	0.35	0.2	0.15	0.35
Min. bending radius	[mm]	25	40	2	25
Outer ∅	[mm]	2.2			
Head size		M4			
Protection class		IP66			
Ambient temperature	[°C]	–55 ... +70		–40 ... +70	–55 ... +115
Material	Housing	High-alloy stainless steel		Nickel-plated brass	High-alloy stainless steel
	Fibre-optic cable	Polyethylene			

1) With SOE4-FO-L and SOE4-FO-D in standard mode
2) An attempt was made to obtain a signal at 10% of the range using a copper wire. The smallest wire diameter that was still detected corresponds to the diameter of the smallest detectable object.

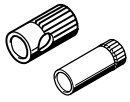
Technical data – Fibre-optic cable (through-beam sensor)					
Special feature of fibre-optic cable		Precision		Series	Fork light barrier
Working range[1]	[mm]	30	120	250	5
Min. object diameter[2]	[mm]	0.05	0.2	0.1	0.2
Min. bending radius	[mm]	10	15	25	10
Outer ∅	[mm]	1.0	2.2	2.2	1.25
Head size		M3	M4	10x10x5 mm	41x15x7 mm
Fork pit size		–			5x29 mm
Protection class		IP66			
Ambient temperature	[°C]	–55 ... +70			
Material	Housing	High-alloy stainless steel		Nickel-plated brass	Acrylic butadiene styrene
	Fibre-optic cable	Polyethylene			

1) With SOE4-FO-L and SOE4-FO-D in standard mode
2) An attempt was made to obtain a signal at 10% of the range using a copper wire. The smallest wire diameter that was still detected corresponds to the diameter of the smallest detectable object.

Ordering data – Fibre-optic cable (through-beam sensor)							
Measuring method	Special feature of fibre-optic cable	Outer ∅ [1] [mm]	Sleeve length [mm]	Fibre-optic cable length 1 m Part No.	Type	2 m Part No.	Type
Through-beam sensor							
	Standard	2.2	–	**552814**	**SOOC-TB-M4-1-R25**	**552812**	**SOOC-TB-M4-2-R25**
			40	**552815**	**SOOC-TB-M4-1-R25-S4**	**552813**	**SOOC-TB-M4-2-R25-S4**
	Large working range	2.2	–	**552817**	**SOOC-TB-H-M4-1-R40**	**552816**	**SOOC-TB-H-M4-2-R40**
	Flexible	2.2	–	**–**		**552818**	**SOOC-TB-F-M4-2-R2**
	High temperature	2.2	–	**–**		**552826**	**SOOC-TB-M4-2-R25-T1**
	Precision	1	–	**552821**	**SOOC-TB-P-M3-1-R10**	**552819**	**SOOC-TB-P-M3-2-R10**
			40	**552822**	**SOOC-TB-P-M3-1-R10-S4**	**552820**	**SOOC-TB-P-M3-2-R10-S4**
		2.2	–	**552825**	**SOOC-TB-P-M4-1-R15**	**552823**	**SOOC-TB-P-M4-2-R15**
			40	**–**		**552824**	**SOOC-TB-P-M4-2-R15-S4**
	Series	2.2	–	**–**		**552827**	**SOOC-TB-M-A5-2-R25**
	Fork light barrier	1.25	–	**–**		**552828**	**SOOC-TB-P-C5-2-R10**

1) The scope of delivery for fibre-optic cables with fibre-optic cable ∅ < 2.2 mm includes an adapter SASA

Technical data and order codes – Ancillary lenses

	Lens function		Protection class	Ambient temperature [°C]	Material Housing	Part No.	Type
	Increasing working range	Factor 4[1)]	IP66	–30 … +150	Nickel-plated brass	**552829**	**SASF-L1-LD-M2**
		Factor 8[1)]			Anodised aluminium	**552832**	**SASF-L1-LD-M4**
	Light exit 90°				Nickel-plated brass	**552830**	**SASF-L1-LA-M2**
	Focussing[2)]				Anodised aluminium	**552831**	**SASF-L1-LS2-M4**

1) Depending on the fibre-optic cable
2) Light spot diameter 0.7 mm at a distance of 10 mm, depending on the fibre-optic cable

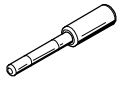
Compatibility table – Ancillary lenses

Fibre-optic cable	SASF-L1-LD-M2	SASF-L1-LD-M4	SASF-L1-LA-M2	SASF-L1-LS2-M4	➔ Page/Internet
Diffuse sensor					
SOOC-DS-P-M4-2-R15	■	–	–	■	5
SOOC-DS-P-M4-1-R15	■	–	–	■	
SOOC-DS-C-M4-2-R15	■	–	–	■	
Through-beam sensor					
SOOC-TB-M4-2-R25	■	■	■	■	6
SOOC-TB-M4-1-R25	■	■	■	■	
SOOC-TB-H-M4-2-R40	■	■	■	■	
SOOC-TB-H-M4-1-R40	■	■	■	■	
SOOC-TB-F-M4-2-R2	■	■	■	■	
SOOC-TB-P-M4-2-R15	■	■	■	■	
SOOC-TB-P-M4-1-R15	■	■	■	■	
SOOC-TB-M4-2-R25-T1	■	■	■	■	

- Note

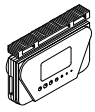
Only the fibre-optic cables listed here are suitable for combination with an ancillary lens.

Technical data and order codes – Adapter[1)]

	Outer ∅ [mm]	Suitable for fibre-optic cable ∅ [mm]	Protection class	Ambient temperature [°C]	Material Housing	Part No.	Type
	2.2	1.0	IP64	–20 … +60	Acrylic butadiene styrene	**552834**	**SASA-L1-10**
		1.25 … 1.3				**552833**	**SASA-L1-13**

1) Included in the scope of delivery for fibre-optic cables SOOC with fibre-optic cable ∅ < 2.2 mm

Technical data and order codes –Fibre-optic cable cutter

	Use	Suitable for fibre-optic cable ∅ [mm]	Radius of bending tool[1)] [mm]	Ambient temperature [°C]	Material Housing	Part No.	Type
	For polymer fibre-optic cables	1.0 1.3 2.2	5, 8, 10	10 … 60	Acrylic butadiene styrene, reinforced	**552835**	**SATC-L1-C**

1) Bending tool for fibre-optic cable sleeves

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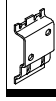
Accessories

Ordering data – Connecting cables

Technical data ➔ Internet: nebu

	Number of wires	Cable length [m]	Part No.	Type
M8x1, straight socket				
	4	2.5	**541342**	**NEBU-M8G4-K-2.5-LE4**
		5	**541343**	**NEBU-M8G4-K-5-LE4**
M8x1, angled socket				
	4	2.5	**541344**	**NEBU-M8W4-K-2.5-LE4**
		5	**541345**	**NEBU-M8W4-K-5-LE4**

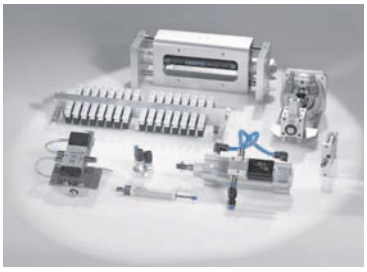
Ordering data – Adapter plate

	Part No.	Type
	**540214**	**SXE3-W**

Product Range and Company Overview

A Complete Suite and Company Overview

Our experienced engineers provide complete support at every stage of your development process, including: conceptualization, analysis, engineering, design, assembly, documentation, validation, and production.



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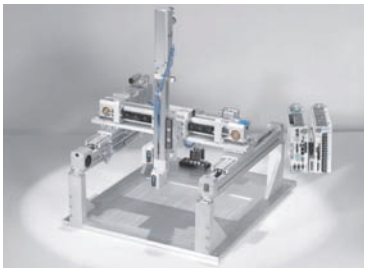

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9001:CERTCS-16248-2006-AQ-ESN-TGA
ISO 9001
ISO 14001
DNV
Certified Company
14001:CERTCS-16248A-2006-AQ-ESN-TGA

UL REGISTERED FIRM

FSC Printed on recycled paper at New Horizon Graphic, Inc., FSC certified as an environmental friendly printing plant.

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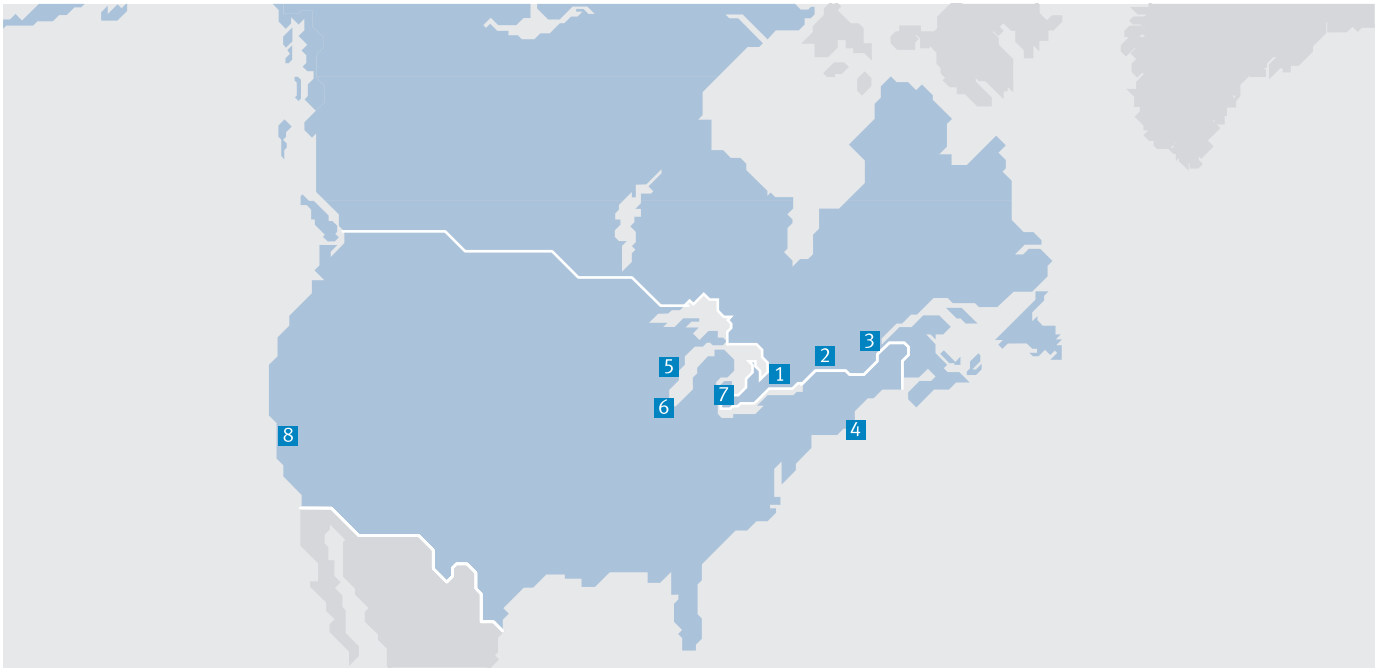

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