### Proximity sensors, block design

## **FESTO**



## **Proximity sensors, block design**Product range overview



Measuring	Version	Туре	Mounting	Switching elen	nent function	Switching	Electrical connection					
principle				N/O contact	N/C contact	output	Cable	Plug				
Nagneto-	Operating voltage range 10 30 V DC											
resistive		SMTO-1	Via accessories	_		PNP	3-wire	M8x1, 3-pin				
				-	_							
				_		NPN	3-wire	M8x1, 3-pin				
				•	_			,				
	~~	SMTSO-1				PNP	-	M12x1, 3-pin				
		Welding field		_								
		immune		•	_							
	0											
		1						1				
<b>Nagnetic</b>	Operating vo	ltage range 0 30 V D										
reed		SMEO-1	Via accessories	_	_	Contacting	-	M8x1,				
				_				3-pin <sup>1)</sup>				
							3-wire	M8x1, 3-pin				
				-	_							
	Operating voltage range 0 250 V AC, 0 200 V DC											
		SMEO-1-B	Via accessories	_	_	Contacting	2-wire	-				
				_								
		SMEO-1		_	_		2-wire	-				
				•	_		2-wire	-				
		SMEO-1-S6-C		_			2-wire	_				
		Heat-resistant up		•	_							
		to 120 °C										
Magnetic	Dnoumatica	oximity sensor, opera	ting proceure 2 6 hs									
nagnetit	riieuiliatic pi	SMPO-1	Via accessories	31		T_						
	.30	SWPU-1	via accessories	<b>2</b> )		_	_	_				
				<b>-</b> -/	_							
	<b>₩</b>											
Magneto-	Operating vo	ltage range 10 30 V	DC									
nductive	^	SMT-C1	Clamped			PNP	3-wire	M8x1,				
						1	,	3-pin				
				-	-			M12x1,				

The proximity sensor has 2 wires internally. One pin of the M8 plug is unused.
 3/2-way valve, normally closed

### **Proximity sensors, block design** Product range overview



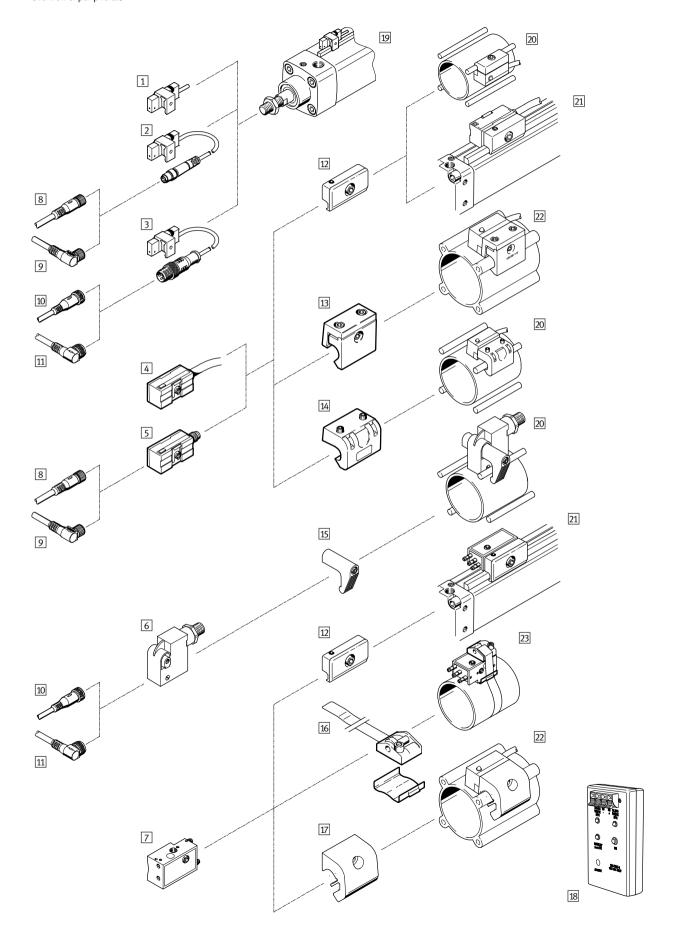
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Туре	Connection direct		Replacement with- Switching status	Free of copper and	→ Page/Internet	
	In-line	Lateral	out re-adjustment	display via LED	PTFE	
Operating voltage	range 10 30 V DC					
SMTO-1	•	-	<b>1</b> )	•	•	7
	•	-	<b>1</b> )	•	-	
SMTSO-1						9
Welding field immune	•	-	-	•	-	
Operating voltage	range 0 30 V DC					
SMEO-1	•	-	<b>1</b> )	-	•	11
	-	-	<b>1</b> )	•	•	
Operating voltage	range 0 250 V DC, (	200 V DC				
SMEO-1-B	•	-	<b>1</b> )	-	-	11
SMEO-1	•	-	<b>1</b> )	•	-	
	•	-	<b>1</b> )	-	-	
SMEO-1-S6-C Heat-resistant up to 120 °C	•	-	<b>1</b> )	-	-	
Pneumatic proxim	nity sensor, operating p	oressure 2 6 bar				
SMPO-1	•	-	<b>1</b> )	_ 2)	_	14
Onevetinguelis	20 V DC					
Operating voltage SMT-C1	range 10 30 V DC					16
JWII-C1	•	-	-	•	•	10

Not in combination with mounting kit SMB-1 or SMBS-...
 Switching status is indicated via a pneumatic pin

### **Proximity sensors, block design** Overview of peripherals





## Proximity sensors, block design Overview of peripherals



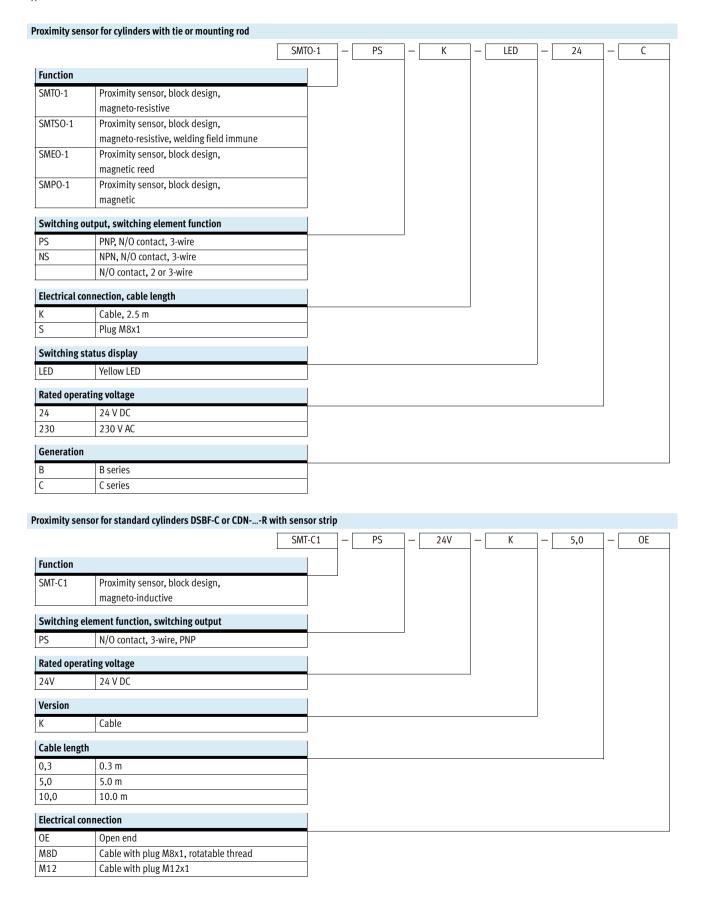
5

	unting attachments and accessories	Brief description	→ Page/Internet
Prox	cimity sensors	· ·	Ū,
1	SMT-C1	Magneto-inductive, with cable and clamping component	16
2	SMT-C1	Magneto-inductive, with cable and plug M8x1 and clamping component	16
3	SMT-C1	Magneto-inductive, with cable and plug M12x1 and clamping component	16
4	SMTO-1	Magneto-resistive, with cable	7
	SMEO-1	Magnetic reed, with cable	11
5	SMTO-1	Magneto-resistive, with plug M8x1	7
	SMEO-1	Magnetic reed, with plug M8x1	11
6	SMTSO-1	Magneto-resistive, welding field immune, with plug M12x1	9
7	SMPO-1	Pneumatic	14
			-
Acc	essories		
8	Connecting cable NEBU-M8G3	Straight socket, M8x1, 3-pin	21
9	Connecting cable NEBU-M8W3	Angled socket, M8x1, 3-pin	
10	Connecting cable NEBU-M12G5	Straight socket, M12x1, 3-pin	
11	Connecting cable NEBU-M12W5	Angled socket, M12x1, 3-pin	
12	Mounting kit SMB-1	For drives with tie rod $\varnothing$ 6 mm or mounting rail	19
		For standard cylinders DSBG	
13	Mounting kit SMBU-1-B	For standard cylinders DNU	19
14	Mounting kits SMB-2-B, SMB-3-B	For standard cylinders DSBG	19
15	Mounting kit SMBT-1	For standard cylinders DSBG	20
16	Mounting kit SMBS	For round cylinders	20
17	Mounting kit SMBU-1-H-32	For standard cylinders DNU	20
18	Sensor tester SM-TEST-1		sm-test-1
			·
Driv			
19	Standard cylinder DSBF-C or CDNR with	Ø 32 100 mm	-
	sensor rail		
20	Standard cylinder DSBG	Ø 32 125 mm	-
21	Flat cylinder DZH	Ø 32 63 mm	-
	Semi-rotary drive DRQ	Ø 40 100 mm	
22	Standard cylinder DNU	Ø 32 125 mm	
23	Round cylinder	Ø 8 100 mm	

#### Proximity sensors, block design



Type code:

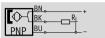


#### Proximity sensors SMTO-1, block design, magneto-resistive



Function e.g. PNP, N/O contact, with cable

e.g. NPN, N/O contact, with cable



• Magneto-resistive measuring





Design		
Constructional design		Block design
Type of mounting		Via accessories
Connection direction		In-line
Reproducibility of switching point <sup>1)</sup>	[mm]	±0.1
Switching status display		Yellow LED

1) Only applicable to drives secured against rotation.

Technical data – N/O contact			
Switch output		PNP	
		NPN	
Electrical connection		Cable, 3-wire	Plug M8x1, 3-pin
Cable length	[m]	2.5	-
Operating voltage range	[V DC]	10 30	
Max. switching current	[mA]	200	
Max. switching capacity	[W]	6	
Voltage drop	[V]	3	
Residual current	[mA]	≤0.01	
Switch-on time	[ms]	≤1	
Switch-off time	[ms]	≤1	
Protection against short circuit		Yes	
Protection against polarity reversal		For all electrical connections	
Protection class		IP67	

Operating and environmental conditions					
Electrical connection		Cable			Plug
Cable installation		Fixed		Flexible	
Ambient temperature	[°C]	-25 +70		−5 <b></b> +70	-25 +70
Corrosion resistance class CRC <sup>1)</sup>		4	<u> </u>		2
CE symbol (declaration of conformity)		In accordance with EU E	MC directive	2)	
Certification		C-Tick			

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

  2) For information about the applicability of the component see the manufacturer's EC declaration of conformity at: www.festo.com/sp 

  User documentation.

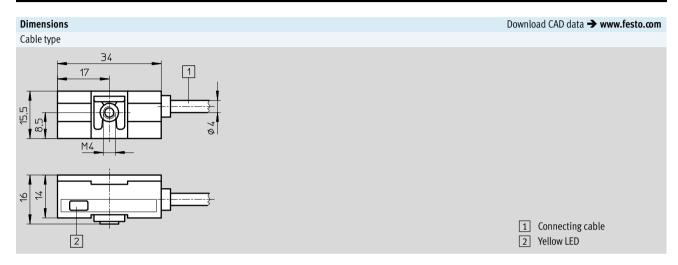
  If the component is subject to restrictions on usage in residential, office or commercial environments or small businesses, further measures to reduce the emitted interference may be necessary.

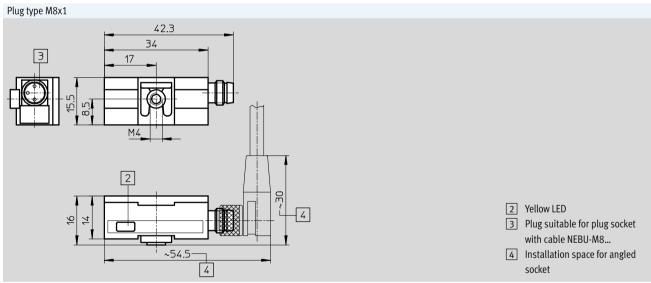
Materials	
Housing	Die-cast zinc, polyester
Cable sheath	Polyvinyl chloride
Note on materials	Free of copper and PTFE

### **Proximity sensors SMTO-1, block design, magneto-resistive** Technical data



Product weights [g]					
Electrical connection	Cable	Plug			
N/O contact					
PNP	85	20			
NPN	85	20			





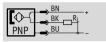
Ordering data						
	Switch output	Electrical connection		Cable length	Part No.	Туре
		Cable	Plug M8x1	[m]		
N/O contact						
	PNP	3-wire	-	2.5	151683	SMTO-1-PS-K-LED-24-C
		-	3-pin	-	151685	SMTO-1-PS-S-LED-24-C
	NPN	3-wire	-	2.5	151684	SMTO-1-NS-K-LED-24-C
		-	3-pin	-	151686	SMTO-1-NS-S-LED-24-C

### Proximity sensors SMTSO-1, block design, magneto-resistive

**FESTO** 

Technical data

Function PNP, N/O contact, with plug



- Welding field immune
- Magneto-resistive measuring principle



Design	
Constructional design	Block design
Type of mounting	Via accessories
Connection direction	In-line
Reproducibility of switching point <sup>1)</sup> [mm]	±0.1
Switching status display	Yellow LED
Ready status display	Green LED

1) Only applicable to drives secured against rotation

Technical data – PNP, N/O contact		
Electrical connection		Plug M12x1, 3-pin
Operating voltage range	[V DC]	10 30
Max. switching current	[mA]	200
Max. switching capacity	[W]	6
Voltage drop	[V]	3
Residual current	[mA]	0.01
Switch-on time	[ms]	≤35
Switch-off time	[ms]	≤20
Resistance to interference from magn	etic fields	Alternating magnetic field 50 60 Hz
Protection against short circuit		Yes
Protection against polarity reversal		For all electrical connections
Protection class		IP65/IP67

Operating and environmental conditions		
Ambient temperature	[°C]	-25 +70
Corrosion resistance class CRC <sup>1)</sup>		1
CE symbol (declaration of conformity)		In accordance with EU EMC directive <sup>2)</sup>
Certification		C-Tick

<sup>1)</sup> Corrosion resistance class 1 according to Festo standard 940 070

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	Die-cast zinc

Product weights [g]	
N/O contact	
PNP	70

Components requiring low corrosion resistance. Transport and storage protection. Parts that do not have primarily decorative surface requirements, e.g. in internal areas that are not visible or behind covers.

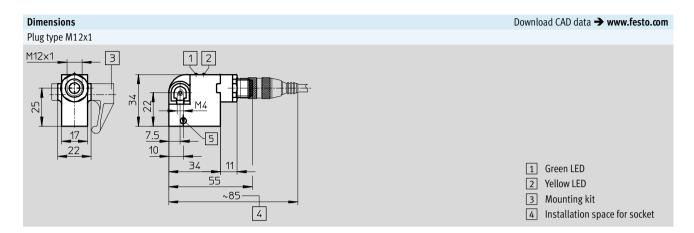
2) For information about the applicability of the component see the manufacturer's EC declaration of conformity at: www.festo.com/sp 

3 User documentation.

# **Proximity sensors SMTSO-1, block design, magneto-resistive** Technical data



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Ordering data				
	Switch output	Electrical connection	Part No.	Туре
	N/O contact Welding field immune			
	PNP	Plug M12x1, 3-pin	30441	SMTSO-1-PS-S-LED-24

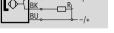
## **Proximity sensors SMEO-1, block design, magnetic reed**Technical data

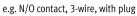


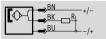
Function e.g. N/O contact, 3-wire, with cable



Magnetic reed measuring principle











Technical data					
Electrical connection	3-wire	2-wire			
Туре	SMEO-124	SMEO-1-LED-230	MEO-1-LED-230 SMEO-1-B SMEO-1-S6,		
				heat-resistant	
Design	Block design	Block design	Block design		
Conforms to	-	EN 60947-5-2	EN 60947-5-2		
Certification	C-Tick	C-Tick	C-Tick		
CE mark	To EU EMC Directive <sup>1)</sup>	To EU EMC Directive <sup>1</sup>	To EU EMC Directive <sup>1)</sup>		
(see declaration of conformity)	-	To EU Low Voltage Di	To EU Low Voltage Directive		
Note on materials	Free of copper and PTFE	Free of copper and P	Free of copper and PTFE		

<sup>1)</sup> 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.

Input signal/measuring element					
Туре	SMEO-1	SMEO-1-S6, heat-resistant			
Measuring principle	Magnetic reed	Magnetic reed			
Ambient temperature [°C		-50 +120			

Switching output						
Electrical connection		3-wire	2-wire	2-wire		
Туре		SMEO-124	SMEO-1-LED-23	30 SMEO-1-B	SMEO-1-S6,	
					heat-resistant	
Switching output		Contacting, bipolar	Contacting, bip	olar		
Switching element function		N/O contact	N/O contact			
Reproducibility of switching point <sup>1)</sup>	[mm]	±0.1	±0.1	±0.1		
Switch-on time	[ms]	≤0.5	≤0.5	≤0.5		
Switch-off time	[ms]	≤0.03	≤0.03	≤0.03		
Max. switching frequency	[Hz]	-	500	500		
Max. output current	[mA]	1,000	-	1,000		
Max. output current DC	[mA]	-	120	1,000	-	
Max. output current AC	[mA]	-	250	1,000	_	
Max. switching capacity DC	[W]	27	40	40		
Max. switching capacity AC	[VA]	-	40	40		
Voltage drop	[V]	-	0 4.5	4.5		
Residual current	[mA]	-	0			

<sup>1)</sup> Only applicable to drives secured against rotation.

Output, additional data	
Protection against short circuit	No
Protection against overloading	No

# Proximity sensors SMEO-1, block design, magnetic reed Technical data



Electronic components						
Electrical connection		3-wire		2-wire		
Туре		SMEO-1LED-24	SMEO-1-S-24-B	SMEO-1-LED-230	SMEO-1-B	SMEO-1-S6, heat-resistant
Operating voltage range DC	[V]	12 27	0 30	5 200	0 200	
Operating voltage range AC	[V]	-	-	5 250	0 250	
Reverse polarity protection		No	•	No		

Electromechanical components							
Electrical connection		3-wire		2-wire			
Туре		SMEO-1-LED-24	SMEO-1-SB	SMEO-1-LED-230	SMEO-1-B	SMEO-1-S6,	
						heat-resistant	
Electrical connection		Cable, 3-wire	Plug M8x1, 3-pin	Cable, 2-wire	Cable, 2-wire		
Connection direction		In-line					
Cable length	[m]	2.5	-	2.5	2.5	2.5	
		5		5	-	-	
Cable sheath materials		TPE-U (PUR)	-	PVC	PVC	TPE-S	

Mechanical components			
Electrical connection		3-wire	2-wire
Type of mounting		Via accessories	
Tightening torque	[Nm]	-	2.9
Product weight	[g]		
Housing materials		Die-cast zinc	Die-cast zinc
		-	Epoxy resin
			TPE-O
			Steel
			PET
			PC

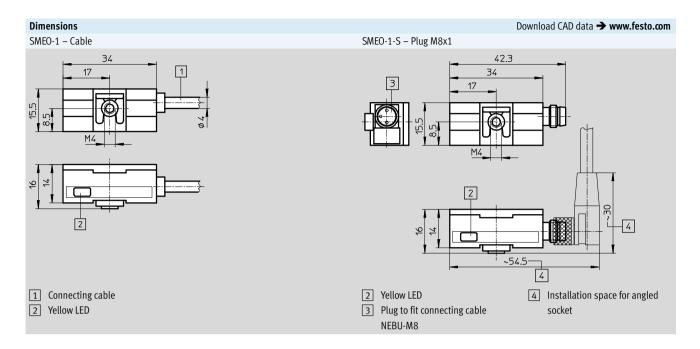
Display/operation					
Electrical connection	3-wire		2-wire		
Туре	SMEO-1LED-24	SMEO-1-S-24-B	SMEO-1-LED-230	SMEO-1-B	SMEO-1-S6, heat-resistant
Switching status display	Yellow LED	-	Yellow LED	_	-

Immissions/emissions						
Electrical connection		3-wire		2-wire		
Туре		SMEO-1LED-24	SMEO-1-S-24-B	SMEO-1-LED-230	SMEO-1-B	SMEO-1-S6, heat-resistant
Ambient temperature with flexible cable installation	[°C]	-5 +70	-	-5 +70	-5 +70	-40 +120
Protection class		IP67	<u> </u>	IP67		
Surge capacity	[kV]	-		4		
Degree of contamination		-		3		

Pin allocation to EN 60947-5-2					
M8x1, 3-pin	Л8х1, 3-pin				
N/O contact					
	Pin	Wire colour	Allocation		
1	1	Brown	+		
1	3	Brown Blue	+		
1 + 4	1 3 4	* **	+ - Output		

## **Proximity sensors SMEO-1, block design, magnetic reed** Technical data





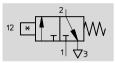
Ordering data							
	Electrical connection		Cable length	Switching status	Product weight	Part No.	Туре
	Cable	Plug M8x1	[m]	display	[g]		
	N/O contact						
	Operating voltage	e range 12 27 V D	С				
	3-wire	_	2.5		85	30459	SMEO-1-LED-24-B
			5.0		130	151672	SMEO-1-LED-24-K5-B
	-	3-pin	_		20	150848	SMEO-1-S-LED-24-B
	Operating voltage	e range 0 30 V DC					
	-	3-pin <sup>1)</sup>	-	_	20	150847	SMEO-1-S-24-B
	Operating voltage range 0 250 V AC, 0 200 V DC						
	2-wire	-	2.5		100	151671	SMEO-1-LED-230-B
			5.0		130	160998	SMEO-1-LED-230-K5-B
			2.5	-	100	30457	SMEO-1-B
	Heat-resistant up	to 120 °C					
	2-wire	_	2.5	_	100	151673	SMEO-1-S6-C

<sup>1)</sup> The proximity sensor has 2 wires internally. One pin of the M8 plug is unused.

## **Proximity sensors SMPO-1, block design, pneumatic** Technical data

**FESTO** 

Function 3/2-way valve, normally closed



- Pneumatic proximity sensor
- Magnetic measuring principle



Design	
Constructional design	Block design
Type of mounting	Via accessories
Connection direction	In-line
Reproducibility of switching point <sup>1)</sup> [mm]	±0.1
Switching status display	Optical

1) Only applicable to drives secured against rotation.

Technical data		
Switching element function		3/2-way valve, normally closed
Operating medium		Filtered, unlubricated compressed air
Operating pressure	[bar]	26
Switch-on time	[ms]	12
Switch-off time	[ms]	30
Pneumatic connection		Barbed connector for tubing, nominal diameter 3 mm
Protection class		IP65

Operating and environmental conditions		
Ambient temperature [°C	C]	-15 +60
Corrosion resistance class CRC <sup>1)</sup>		1

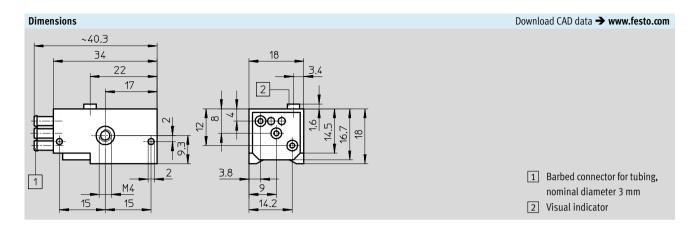
1) Corrosion resistance class 1 according to Festo standard 940 070 Components requiring low corrosion resistance. Transport and storage protection. Parts that do not have primarily decorative surface requirements, e.g. in internal areas that are not visible or behind covers.

Materials	
Housing	Polyamide
Barbed connector	Brass
Note on materials	Free of copper and PTFE

Product weights [g]	
PNP	14

# **Proximity sensors SMPO-1, block design, pneumatic** Technical data



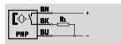


Ordering data			
	Pneumatic connection	Part No.	Туре
	3/2-way valve, normally closed		
	Barbed connector for 3 mm I.D. tubing	31008	SMPO-1-H-B

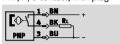
### **Proximity sensors SMT-C1, block design, magneto-inductive** Technical data



Function PNP, N/O contact, with cable



Function PNP, N/O contact, with plug



- Magneto-inductive measuring principle
- For standard cylinders DSBF-C or CDN-...-R with sensor strip





Technical data	
Design	Block design
Based on standard	EN 60947-5-2
Certification	C-Tick
Suitability for use in the food industry	As per manufacturer's declaration
CE mark	To EU EMC Directive <sup>1)</sup>
(see declaration of conformity)	
Note on materials	Cable free of halogen
	Free of copper and PTFE

1) For information about the applicability of the component see the manufacturer's EC declaration of conformity at: www.festo.com/sp  $\Rightarrow$  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.

Input signal/measuring element		
Measuring principle		Magneto-inductive
	.C]	-20 +70

Switching output		
Switching output		PNP
Switching element function		N/O contact
Switch-on time	[ms]	0 0.5
Switch-off time	[ms]	0 0.5
Max. output current	[mA]	200
Max. switching capacity DC	[W]	6
Voltage drop	[V]	0 1.8

Output, additional data	
Protection against short circuit	Pulsed
Protection against overloading	Yes

# **Proximity sensors SMT-C1, block design, magneto-inductive** Technical data



Electronic components		
Operating voltage range DC	[V]	10 30
Residual ripple	[%]	10
Reverse polarity protection		For all electrical connections

Electromechanical component	is					
Туре		SMT-C1OE	SMT-C1M8D	SMT-C1M12		
Electrical connection		Cable, 3-wire	Cable with plug M8x1, 3-pin, rotatable thread	Cable with plug M12x1, 3-pin		
Connection direction		In-line				
Cable length	[m]	-	0.3	0.3		
		5	-	-		
		10				
Cable sheath materials		TPE-O	·			
Wire ends		Wire end sleeve				

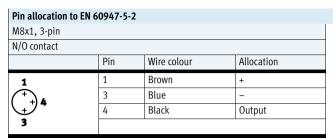
Mechanical components		
Type of mounting		Clamped
Tightening torque	[Nm]	1.2
Mounting position		Any
Housing materials		High-alloy stainless steel
		Wrought aluminium alloy
		Nickel-plated brass
		PP
		TPE-0
		TPE-U(PU)

Display/operation	
Switching status display	Yellow LED

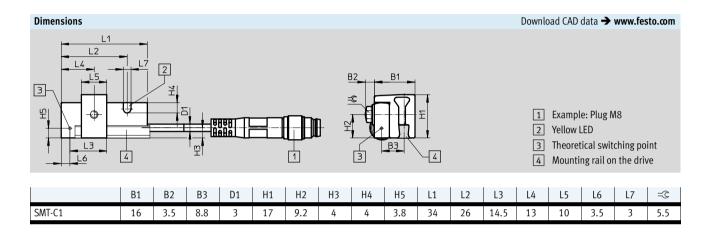
Immissions/emissions		
Ambient temperature with flexible	[°C]	-20 +70
cable installation		
Protection class		To IEC 60529
		IP65
		IP68

### **Proximity sensors SMT-C1, block design, magneto-inductive** Technical data





1			
M12x1, 3-pin			
N/O contact			
	Pin	Wire colour	Allocation
1	1	Brown	+
(+ + + A	3	Blue	_
( + ) <del>-</del>	4	Black	Output
3			



Ordering data								
	Switching	Electrical conn	nection		Cable length	Weight	Part No.	Туре
	output	Cable	Cable with plu	g				
			M8x1, rotatable	M12x1				
			thread		[m]	[g]		
<b>6</b>	N/O contact							
700	PNP	3-wire	_	-	5	65.9	571339	SMT-C1-PS-24V-K-5,0-OE
9					10	114.5	571340	SMT-C1-PS-24V-K-10,0-OE
		-	3-pin	-	0.3	24.4	571342	SMT-C1-PS-24V-K-0,3-M8D
		-	-	3-pin	0.3	32.6	571341	SMT-C1-PS-24V-K-0,3-M12

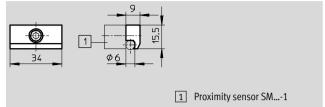
## **Proximity sensors, block design**Accessories

#### **FESTO**

#### Mounting kit SMB-1

Material: Die-cast zinc



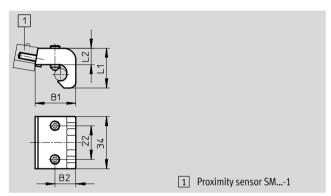


Dimensions and ordering data		
For piston $\varnothing$	Part No.	Туре
32 100	11886	SMB-1

#### Mounting kit SMB-2-B/SMB-3-B

Material: Die-cast aluminium





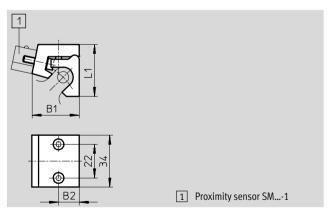
Dimensions and ordering data							
For piston $\varnothing$	B1	B2	L1	L2	Part No.	Туре	
32 50	18	11	23	11.6	36162	SMB-2-B	
63 100	26.8	13.7	26	10.8	36163	SMB-3-B	

#### Mounting kit SMBU

Material:

Die-cast aluminium





Dimensions and ordering data						
For piston $\varnothing$	B1	B2	L1	Part No.	Туре	
32 50	19	8.5	30	36173	SMBU-1-B <sup>1)</sup>	
63 100	31	13.5	34	36174	SMBU-2-B <sup>1)</sup>	
125	31	13.5	37	152828	SMBU-3-B	

1) Free of copper and PTFE

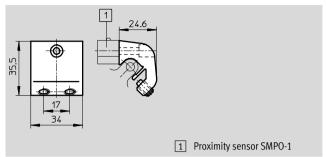
### **Proximity sensors, block design**Accessories

#### **FESTO**

#### Mounting kit SMBU-1-H-32

Material: Aluminium



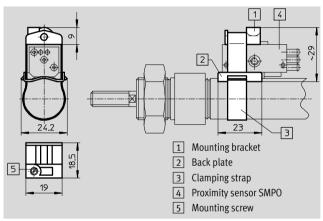


Dimensions and ordering data		
For piston $\varnothing$	Part No.	Туре
32	150216	SMBU-1-H-32

#### Mounting kit SMBS

Material: Brass, plastic



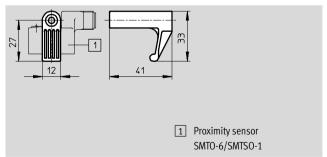


Dimensions and ordering data		
For piston $\varnothing$	Part No.	Туре
8 25	151225	SMBS-1
32 100	151226	SMBS-2

#### Mounting kit SMBT-1

Material: Die-cast zinc





Dimensions and ordering data						
For piston $\varnothing$	Part No.	Туре				
32 200	150002	SMBT-1				

## **Proximity sensors, block design** Accessories



Ordering da	Ordering data — Connecting cables Technical data → Internet: neb						
		Number of wires	Cable length [m]	Part No.	Туре		
Socket M8x1, 3-pin							
	For SMT-C1 and	3	2.5	541333	NEBU-M8G3-K-2.5-LE3		
	SMTO/SMEO-1		5	541334	NEBU-M8G3-K-5-LE3		
	For SMT-C1 and	3	2.5	541338	NEBU-M8W3-K-2.5-LE3		
	SMTO/SMEO-1		5	541341	NEBU-M8W3-K-5-LE3		
Socket M12x1, 5-pin							
	For SMT-C1 and	3	2.5	541363	NEBU-M12G5-K-2.5-LE3		
<b>6</b>	SMTO-6, SMTSO-1		5	541364	NEBU-M12G5-K-5-LE3		
	For SMT-C1 and	3	2.5	541367	NEBU-M12W5-K-2.5-LE3		
<b>%</b>	SMTO-6, SMTSO-1		5	541370	NEBU-M12W5-K-5-LE3		