

## Proximity switch SDBT-MSX

**FESTO**



## Characteristics

### At a glance

- Quick and easy installation without the need to search for switching points
- Mounting without accessories (power supply)
- Reliable teach-in of the switching position under load during operation
- Can be programmed flexibly for expanded applications

### Description

The SDBT-MSX is an electronic proximity sensor for contactless feedback of the piston position of drives with magnetic proximity sensing.

### Additional features

[X] Automatic teach-in and programmable

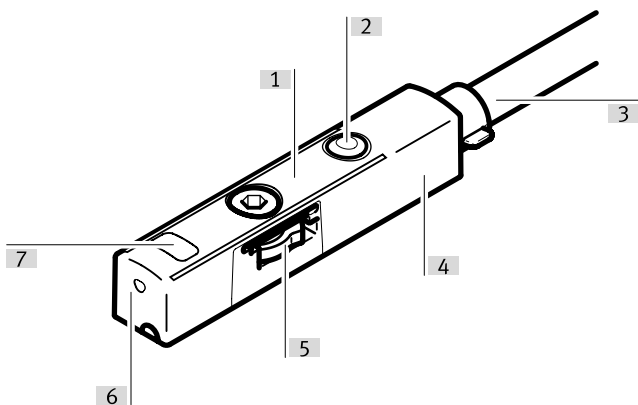
#### Auto teach-in

- Very easy to install without a power supply or precision adjustment. Automatic setup during operation.
- 20 mm sensing range marked on the SDBT-MSX
- Mount the switch so that the end stop of the piston lies within the sensing range
- Connect SDBT-MSX to input module (PLC)
- The SDBT-MSX automatically teaches in the switching point when the system is started

#### Programmable

- Programmable via integrated operating button.
- Switching point (alternative to auto teach-in)
- Switching window range between 2 ... 15 mm
- PNP/NPN
- NO/NC

### Overview



- [1] Auto teach-In: the proximity switch detects the end position of the piston stroke and automatically learns the switching point during operation
- [2] Capacitive operating button: Programming switching point, programming PNP/NPN, programming NO/NC, programming switching window 2 15 mm
- [3] Cable quality energy chain + robot: 3 wire, M8 plug and open end
- [4] Electronic: switching output PNP/NPN, NO/NC
- [5] Sturdy and secure mounting with retaining screw
- [6] Compact, sturdy housing: 28 mm short, IP65 and IP68
- [7] 2 LED: teach-in display, piston within sensing range, switching output ON

## Characteristics

### Product segmentation



Festo Core Range

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- Expected high Festo quality
- Easy and fast to select

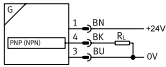
## Type code

001	Series	
SDBT	Sensor, position, binary, T series	
002	Sensor version	
M	Can be inserted in the slot	
003	Sensor principle	
S	Contactless (solid state)	
004	Additional features	
X	Automatic teach-in and programmable	
005	Nominal operating voltage	
1	24 V DC	
006	Display	
L	LED	

007	Digital switching output	
NU	3-wire N/O contact, NPN	
PU	3-wire N/O contact, PNP	
008	Cable characteristic	
E	Suitable for energy chains/robot applications	
009	Cable length [m]	
0.3	0.3 m	
2.5	2.5 m	
5	5 m	
010	Cable identification	
N	Without label holder	
011	Electrical connection	
LE	Open end	
M8	Plug M8, A-coded	

# Datasheet

## General technical data



Design	For T-slot
Based on standard	EN 60947-5-2
Approval	RCM trademark, c UL us listed (OL)
Certificate issuing authority	UL E232949
CE mark (see declaration of conformity) <sup>1)</sup>	To EU EMC Directive, In accordance with EU RoHS Directive
CE marking (see declaration of conformity) <sup>2)</sup>	To UK instructions for EMC, To UK RoHS instructions
Instructions on use	<a href="https://www.festo.com/Drive-Sensor-Overview">https://www.festo.com/Drive-Sensor-Overview</a>
Note on materials	RoHS-compliant, Free of halogen
LABS (PWIS) conformity	VDMA24364-B2-L
Suitability for the production of Li-ion batteries	Metals with more than 1% copper, zinc or nickel by mass are excluded from use. Exceptions are nickel in steel, chemically nickel-plated surfaces, printed circuit boards, cables, electrical plug connectors and coils
Cleanroom class	Class 4 according to ISO 14644-1

1) Please refer to the declaration of conformity for the area of use: [www.festo.com/catalogue/sdbt-msx](http://www.festo.com/catalogue/sdbt-msx) → Support/Downloads.

If the devices are subject to usage restrictions in residential, commercial or light-industrial environments, further measures for the reduction of the emitted interference may be necessary.

2) More information [www.festo.com/catalogue/sdbt](http://www.festo.com/catalogue/sdbt) → Support/Downloads

## Input signal/measuring element

Measuring principle	Magnetic Hall
Measured variable	Position
Ambient temperature	-40 ... 85°C
Ambient temperature with moving cable	-20 ... 85°C

## Signal processing

Max. travel speed	3 m/s
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## Switching output

Switching output	PNP/NPN, switchable
Switching element function	N/C or N/O contact, switchable
Repetition accuracy	0.1 mm
Hysteresis	0.2
Switch-on time	≤2 ms
Switch-off time	≤2 ms
Max. switching frequency	200 Hz
Max. output current	100 mA
Max. output current using mounting kits	100 mA
Max. switching capacity DC	2.8 W
Max. switching capacity DC using mounting kits	2.8 W
Voltage drop	<1.5 V
Min. load current	0.15 mA
Off-state current	<0.2 mA

## Output, additional data

Short circuit current rating	yes
Overload protection	Available

## Datasheet

**Electronics**

Rated operational voltage DC	24 V
Operational voltage range DC	10 ... 30 V
Reverse polarity protection	For all electrical connections

**Electromechanics**

Electrical connection 1, connection type	Cable	Cable with plug
Electrical connection 1, connector system	Open end	M8x1, A-coded, to EN 61076-2-104
Electrical connection 1, number of connections/cores	3	
Connection outlet orientation	In-line	
Cable characteristic	Suitable for energy chains/robot applications	
Test conditions cable	Bending strength: to Festo standard, Test conditions on request, Torsional resistance: > 300,000 cycles, $\pm 270^\circ/0.1$ m, Energy chain: > 5 million cycles, bending radius 28 mm	

**Mechanical components**

Electrical connection 1, connection type	Cable	Cable with plug
Type of mounting	Screw-clamped, Insertable in the slot from above	
Electrical connection 1, type of mounting	–	Screw-type lock
Mounting position	optional	
Max. tightening torque	0.6 Nm	
Material housing	PA-reinforced, High-alloy stainless steel	Brass, nickel-plated, PA-reinforced, High-alloy stainless steel
Housing colour	Black	
Material cable sheath	TPE-U(PUR)	
Cable sheath colour	grey	
Wire ends	Wire end sleeve	–

**Display/operation**

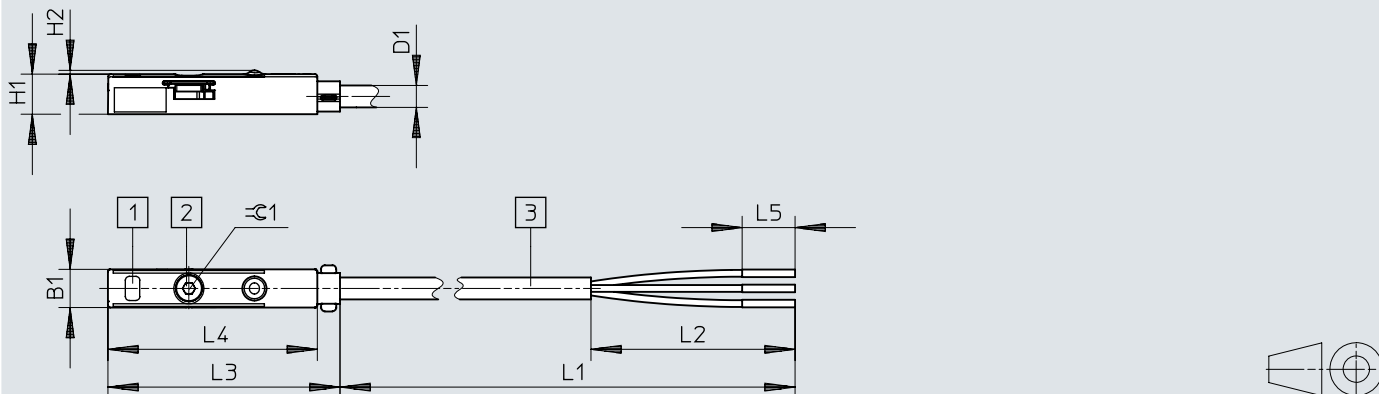
Setting options	Auto teach-in, Capacitive pushbutton
Switching status indication	Yellow LED
Status indication	Green LED

**Immission/emission**

Ambient temperature with moving cable	-20 ... 85°C
Degree of protection	IP68

## Dimensions

## Dimensions – Proximity switch open end

Download CAD data → [www.festo.com](http://www.festo.com)

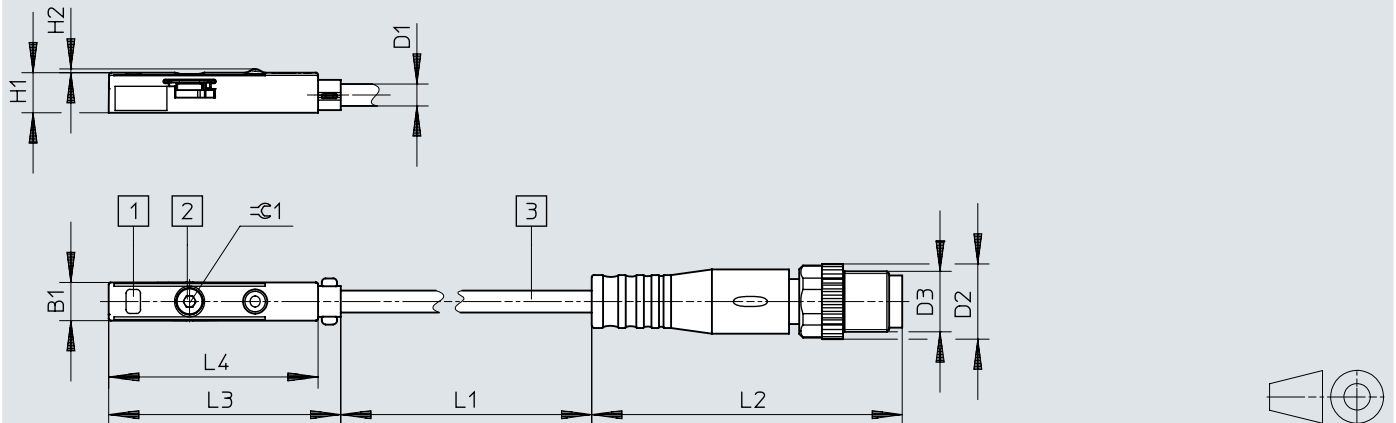
- [1] Yellow and green LED  
 [2] Retaining screw with hexagon socket  
 [3] Connecting cables

SDBT-MSX	B1	D1 ∅	H1	H2	L1	L2	L3	L4	L5	≈ 1
SDBT-MSX-1L-PU-E-2,5-N-LE	5,1	2,9	5,3	0,5	2500	50	30,7	27,7	7	1,5
SDBT-MSX-1L-PU-E-5-N-LE					5000					
SDBT-MSX-1L-NU-E-2,5-N-LE					2500					
SDBT-MSX-1L-NU-E-5-N-LE					5000					

## Dimensions

### Dimensions – Proximity switch with plug

Download CAD data → [www.festo.com](http://www.festo.com)



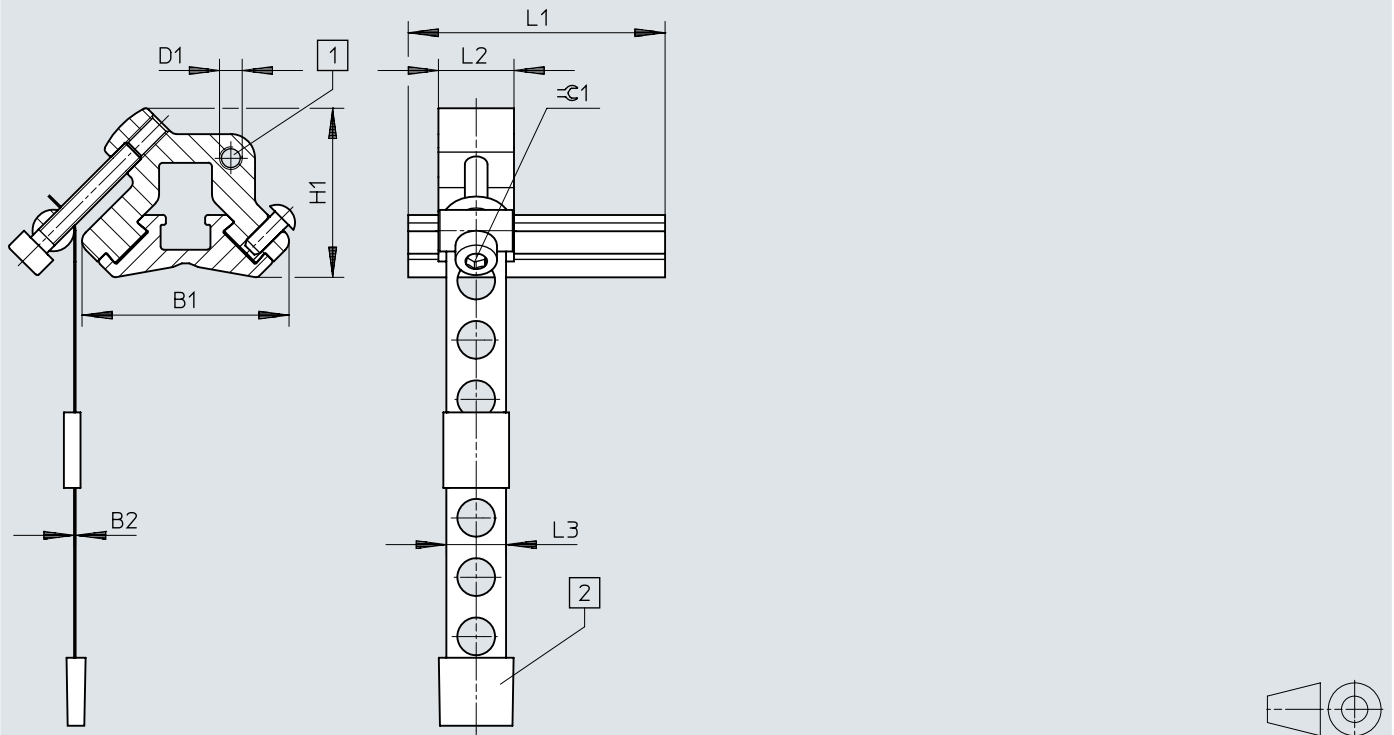
- [1] Yellow and green LED
- [2] Allen key
- [3] Connecting cables

SDBT-MSX	B1	D1 ∅	D2 ∅	D3	H1	H2	L1	L2	L3	L4	≅ 1
SDBT-MSX-1L-PU-E-0,3-N-M8	5,1	2,9	10	M8x1	5,3	0,5	300	41,1	30,7	27,7	1,5
SDBT-MSX-1L-NU-E-0,3-N-M8											



## Dimensions

## Dimensions – Mounting kit SMBR-8-8/100-S6

Download CAD data → [www.festo.com](http://www.festo.com)

[1] Mounting thread for proximity switch SM ... 0-8E

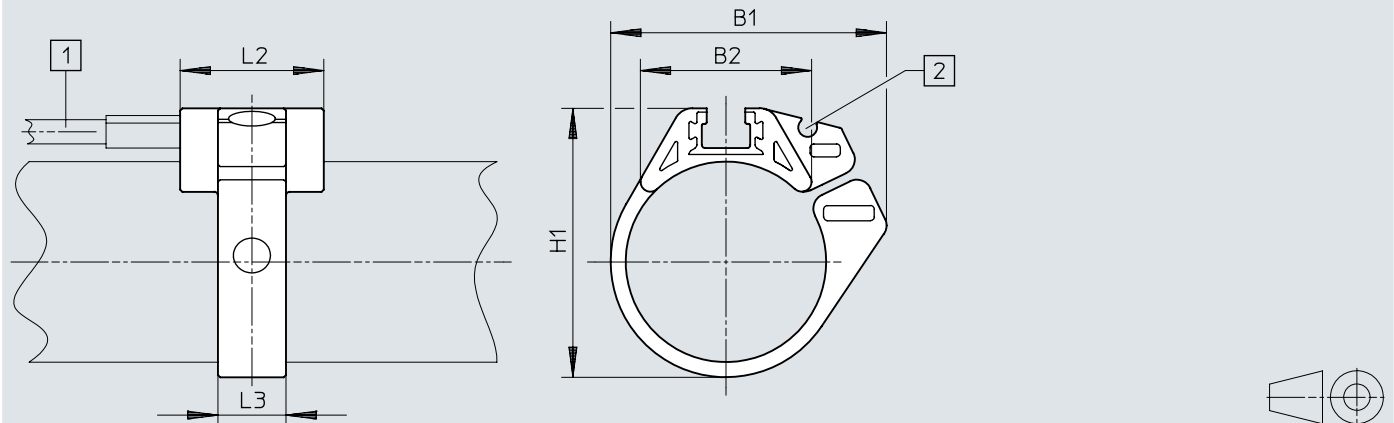
[2] Protective cap

	B1	B2	D1	H1	L1	L2	L3	±0.1
SMBR-8-8/100-S6	27,4	0,2	M3	22,4	34	10	7,9	2,5

## Dimensions

### Dimensions – Mounting kit SMBR

Download CAD data → [www.festo.com](http://www.festo.com)

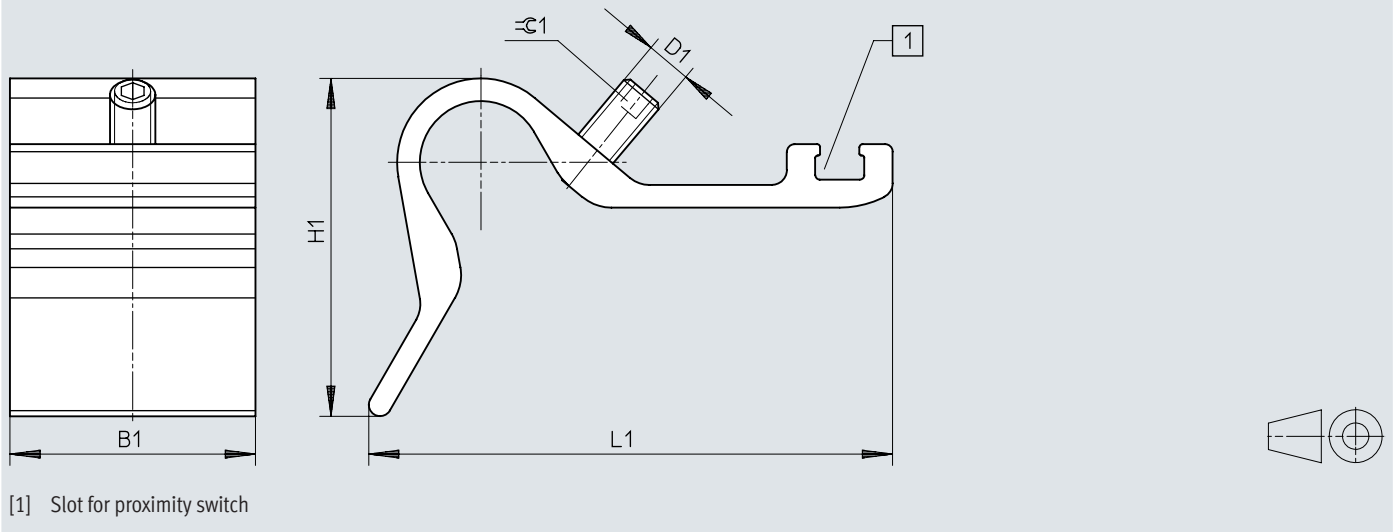


- [1] Proximity switches SME-8- ..., SMT-8- ...
- [2] Guide slot for switch cable

	B1	B2	H1	L2	L3
SMBR-8-8	18,9	12,3	17,5	19	7
SMBR-8-10	20,4	13,7	19,9	19	7
SMBR-8-12	22,7	14,3	21,9	19	7
SMBR-8-16	28,2	16,9	25,7	19	8
SMBR-8-20	34,5	20,8	30,4	19	9
SMBR-8-25	36,7	22,7	35,6	19	9
SMBR-8-32	41,7	24,6	42,7	19	9
SMBR-8-40	47,1	26,5	50,7	19	9
SMBR-8-50	56,4	28,6	61,5	19	9
SMBR-8-63	69,4	32	74,5	19	9

## Dimensions

## Dimensions – Sensor holder DASP-M4-...-A

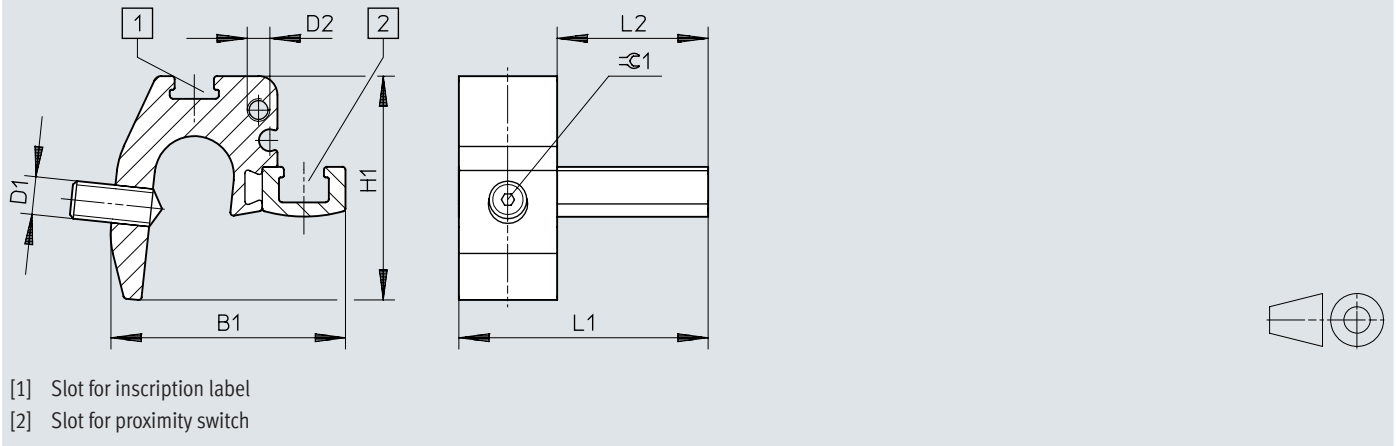
Download CAD data → [www.festo.com](http://www.festo.com)

	B1	D1	H1	L1	$\varnothing 1$
DASP-M4-125-A	32,5	M5	28	45,4	2,5
DASP-M4-160-A	32,5	M6	44,7	69,4	3
DASP-M4-250-A	32,5	M6	56,3	88	3
DASP-M4-320-A	32,5	M6	56,3	88	3

## Dimensions

### Dimensions – Mounting SMBZ-8-32/100

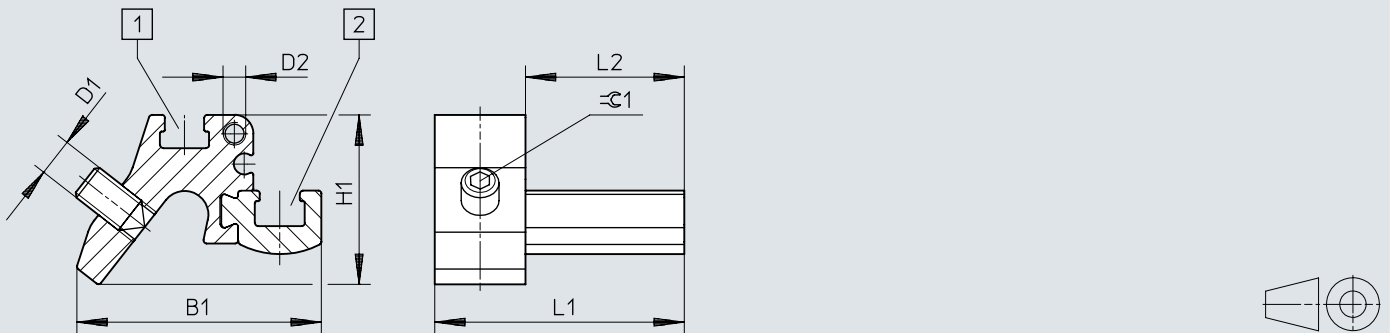
Download CAD data → [www.festo.com](http://www.festo.com)



SDBT-MSX	B1	D1	D2	H1	L1	L2	$\varnothing C1$
SMBZ-8-32/100	31	M5	M3	30	33	20	1,5

## Dimensions

## Dimensions – Mounting SMBZ-8-125/320

Download CAD data → [www.festo.com](http://www.festo.com)

[1] Slot for inscription label

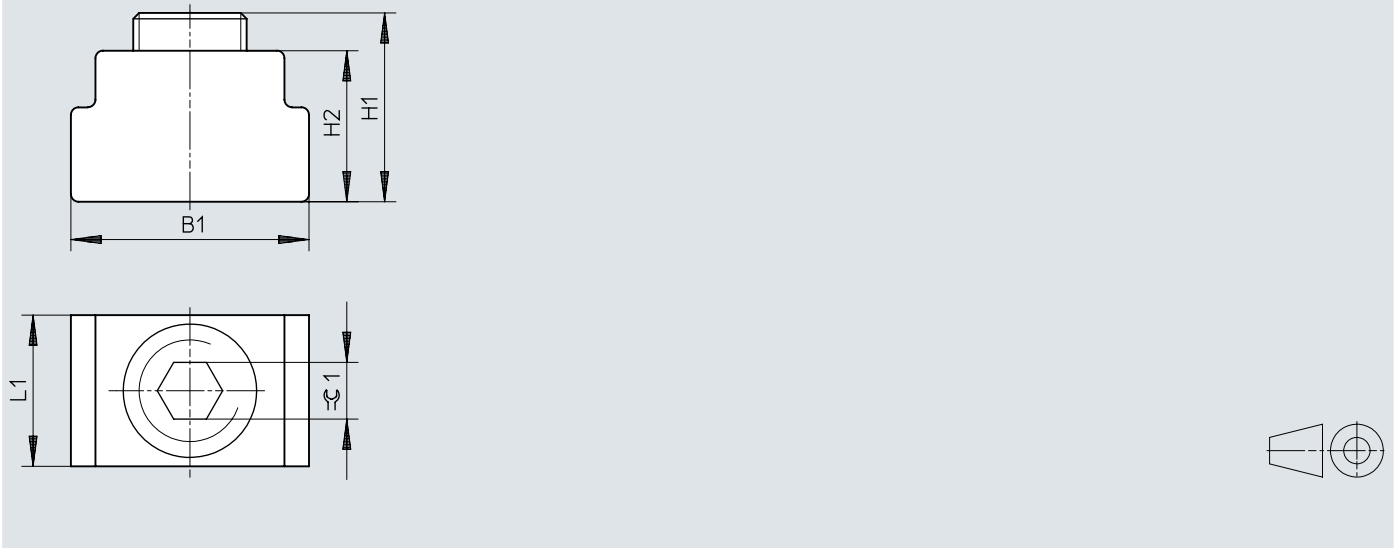
[2] Slot for proximity switch

SDBT-MSX	B1	D1	D2	H1	L1	L2	$\varnothing 1$
SMBZ-8-125/320	32,3	M5	M3	22	33	20	2,5

## Dimensions


### Dimensions – Positioning element SMM

Download CAD data → [www.festo.com](http://www.festo.com)



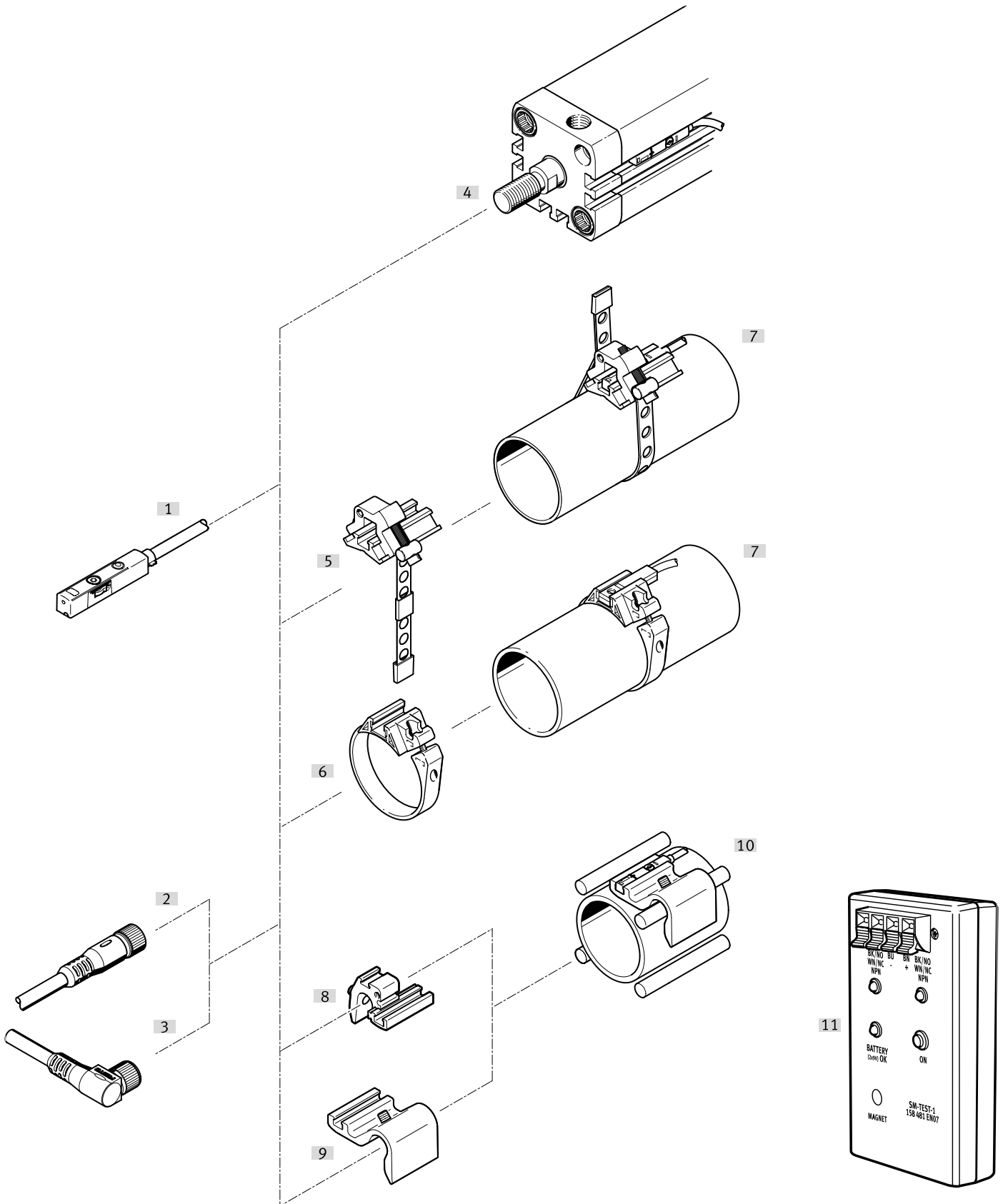
	B1	H1	H2	L1	45°1
SMM-8	6,3	5,0	4,0	4,0	1,5

## Ordering data

Proximity switch					
	Switching output	Cable length	Product weight	Part no.	Type
	PNP/NPN, switchable	0.3 m	10 g	★ 8059123	SDBT-MSX-1L-NU-E-0.3-N-M8
				★ 8059120	SDBT-MSX-1L-PU-E-0.3-N-M8
		2.5 m	29 g	★ 8059121	SDBT-MSX-1L-PU-E-2.5-N-LE
				★ 8059124	SDBT-MSX-1L-NU-E-2.5-N-LE
		5 m	56 g	★ 8059125	SDBT-MSX-1L-NU-E-5-N-LE
				★ 8059122	SDBT-MSX-1L-PU-E-5-N-LE

Peripherals

Peripherals overview



Accessories

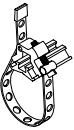
Type/order code	Description	→ Page/Internet
[1] Proximity switch SDBT-MSX:...	-	sdbt-msx





## Peripherals

Accessories		→ Page/Internet
Type/order code	Description	
[2] Connecting cables NEBU-M...G...	Straight socket	18
[3] Connecting cables NEBU-M...W...	Angled socket	19
[4] Drives with T-slot	-	-
[5] Mounting kit SMBR-8-8/100-S6	Heat-resistant design	18
[6] Mounting kit SMBR	For round cylinders	18
[7] Round cylinder	Ex.: DSNU	-
[8] Sensor bracket SMBZ-8-...	-	18
[9] Sensor bracket DASP-M4-...	-	18
[10] Drives with tie rod or mounting rod	For example: DSBG	-
[11] Sensor tester SM-TEST-1	Checking the functionality of proximity switches using the integrated voltage supply. Adjusting proximity switches on the cylinder.	19


## Accessories

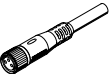
Mounting kit SMBR-8-8/100-S6				
	Material housing		Part no.	Type
	Wrought aluminium alloy, Anodised, High-alloy stainless steel		538937	SMBR-8-8/100-S6

Mounting kit SMBR				
	Material retaining bracket	Material profile	Part no.	Type
	POM	Wrought aluminium alloy	★ 175096	SMBR-8-25
			175092	SMBR-8-10
			175099	SMBR-8-50
			175091	SMBR-8-8
			175098	SMBR-8-40
			★ 175094	SMBR-8-16
			★ 175095	SMBR-8-20
			175100	SMBR-8-63
			★ 175093	SMBR-8-12
			175097	SMBR-8-32

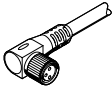
Sensor bracket DASP-M4-...-A				
	Material housing		Part no.	Type
	Wrought aluminium alloy, Anodised		1451483	DASP-M4-125-A
			3015256	DASP-M4-320-A
			1553813	DASP-M4-160-A
			1456781	DASP-M4-250-A


Mounting SMBZ-8-...				
	Material housing		Part no.	Type
	Anodised wrought aluminium alloy		537808	SMBZ-8-125/320
			537806	SMBZ-8-32/100


Positioning element SMM				
	Material housing		Part no.	Type
	Wrought aluminium alloy, Anodised		547941	SMM-8


Connecting cables M8x1 socket, 3-pin, straight socket					
	Electrical connection 1, number of connections/cores	Electrical connection 1, connector system	Cable length	Part no.	Type
	3	M8x1, A-coded, to EN 61076-2-104	2.5 m	541333	NEBU-M8G3-K-2.5-LE3
			5 m	541334	NEBU-M8G3-K-5-LE3


## Accessories

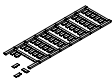
Connecting cables socket M8x1, 3-pin, angled plug socket					
	Electrical connection 1, number of connections/cores	Electrical connection 1, connector system	Cable length	Part no.	Type
	3	M8x1, A-coded, to EN 61076-2-104	2.5 m	541338	NEBU-M8W3-K-2.5-LE3
			5 m	541341	NEBU-M8W3-K-5-LE3

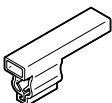
Connecting cables M12x1 socket, 5-pin, straight socket					
	Electrical connection 1, number of connections/cores	Electrical connection 1, connector system	Cable length	Part no.	Type
	5	M12x1, A-coded to EN 61076-2-101	2.5 m	541363	NEBU-M12G5-K-2.5-LE3
			5 m	541364	NEBU-M12G5-K-5-LE3

Connecting cables M12x1 socket, 5-pin, angled plug socket					
	Electrical connection 1, number of connections/cores	Electrical connection 1, connector system	Cable length	Part no.	Type
	5	M12x1, A-coded to EN 61076-2-101	2.5 m	541367	NEBU-M12W5-K-2.5-LE3
			5 m	541370	NEBU-M12W5-K-5-LE3

Mounting components			
	Type of mounting	Part no.	Type
	Clamped in T-slot	534254	SMBK-8

Sensor tester				
	Operational voltage range DC	Degree of protection	Part no.	Type
	12 ... 20 V	IP20	158481	SM-TEST-1

Inscription labels			
	Material label	Part no.	Type
	PC	541598	ASLR-L-423

Inscription label holder						
	Length	Width	Height	Size of pack	Part no.	Type
	23 mm	5.4 mm	10.3 mm	100	8078306	NEAU-LH-2