

Proximity switch SDBT-MSX-..., for T-slot



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Worldwide: Quickest delivery – wherever, whenever
Simply good: Expected high Festo quality
Fast: Easy and fast to select

The Core Range offers you the best value for your automation tasks.



Key features

At a glance

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

Description

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

The proximity switch has two crucial benefits in application:

Auto teach-in

Very easy to install without a power supply or precision adjustment. Automatic set-up during operation.

- 1) 20 mm sensing range marked on the SDBT-MSX.
- 2) Roughly mount the switch so that the end stop of the piston is within the sensing range.
- 3) Connect SDBT-MSX to the input module (PLC)

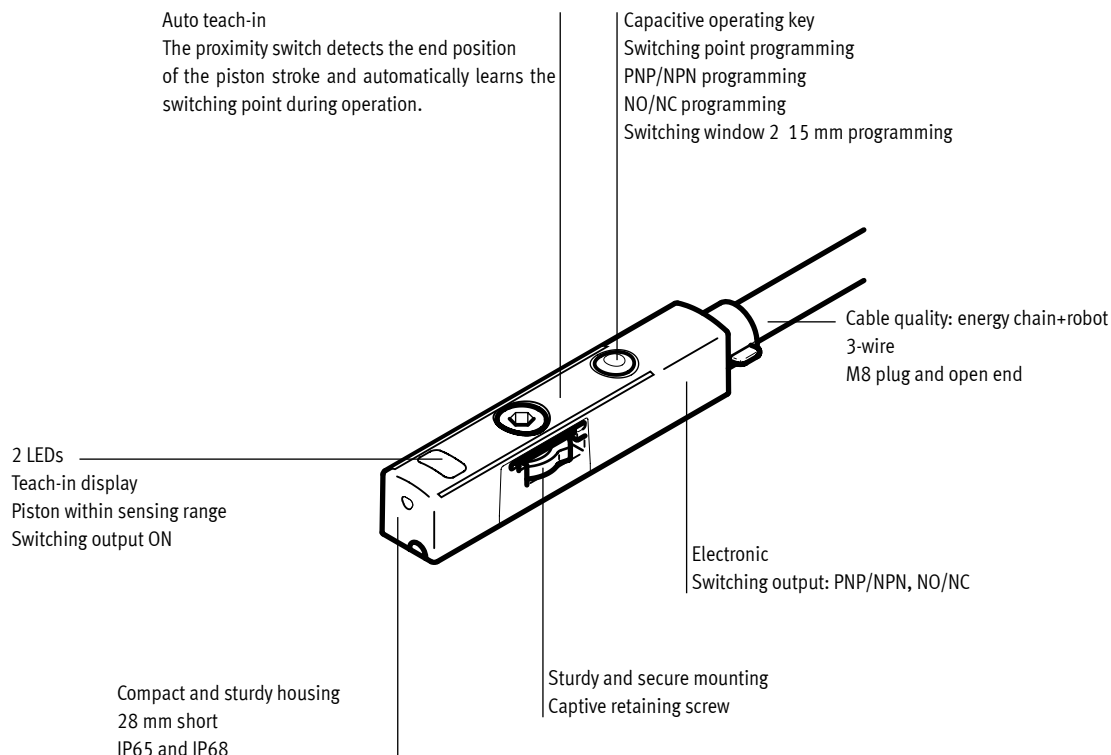
SDBT-MSX automatically learns the switching point during system start-up.

Programmable

Programmable via integrated operating key.

- Switching point (alternative to auto teach-in)
- Width of switching window 2 ... 15 mm
- PNP/NPN
- NO/NC
- Reset

SDBT-MSX – Brief overview

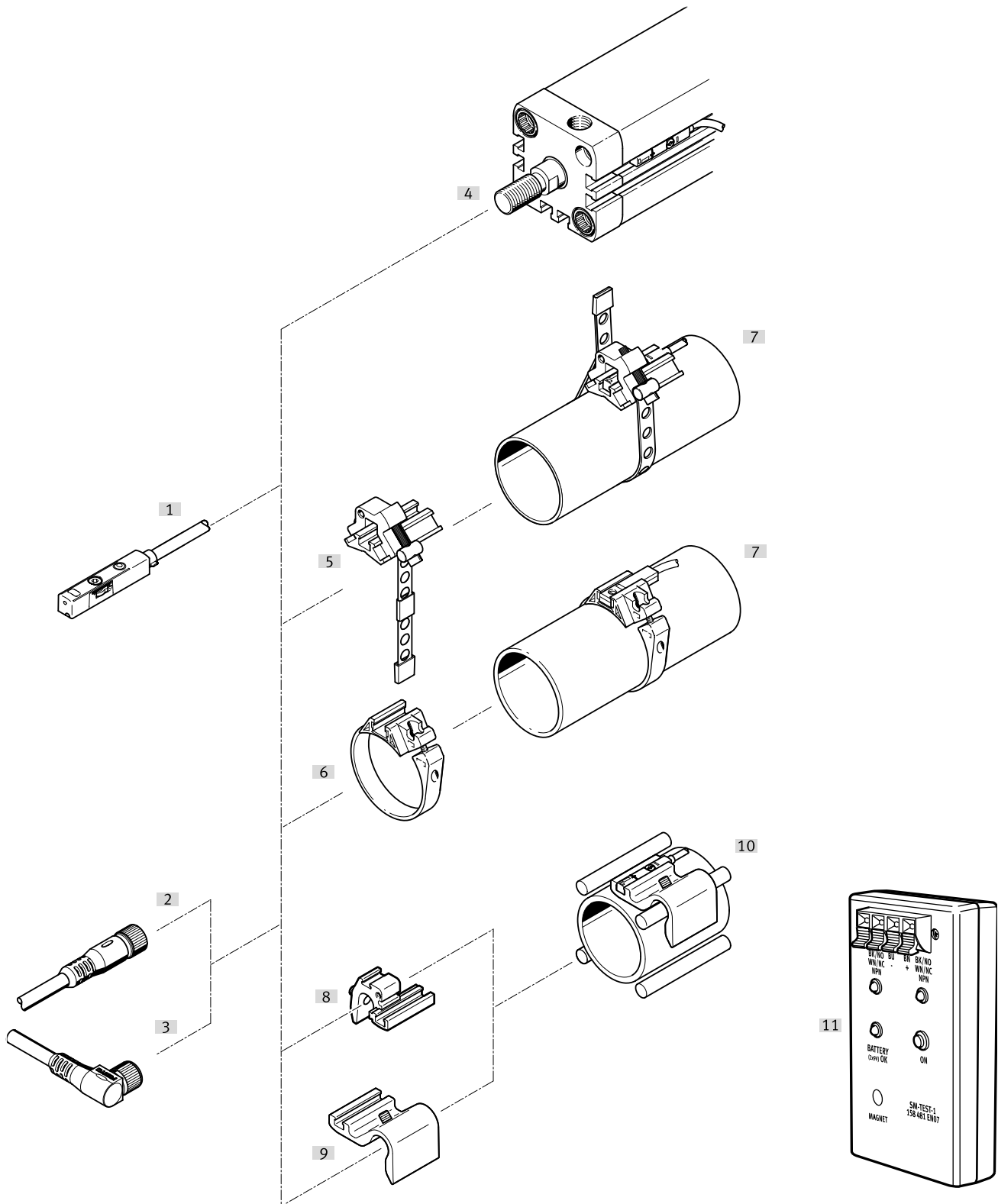


Type codes

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

Peripherals overview



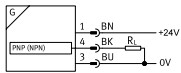
Peripherals overview

| Accessories | | → Page | Accessories | | → Page |
|-------------|---|--------|-------------|-------------------------------------|--------|
| [1] | Proximity switch SDBT-MSX-...- | 6 | [7] | Round cylinder | – |
| [2] | Connecting cables NEBU-M...G... | 14 | [8] | Mounting SMBZ-8-... | 12 |
| [3] | Connecting cables NEBU-M...W... | 14 | [9] | Sensor bracket DASP-M4-... | 12 |
| [4] | Drives with T-slot | – | [10] | Drives with tie rod or mounting rod | – |
| [5] | Mounting kit SMBR-8-8/100-S6, heat resistant | 11 | [11] | Sensor tester SM-TEST-1 | 14 |
| [6] | Mounting kit SMBR | 11 | | | |

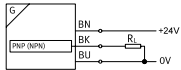
Datasheet – Magnetic Hall

Function

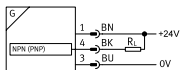
...-PU-...-M8



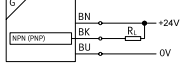
...-PU-...-LE



...-NU-...-M8



...-NU-...-LE



| General technical data | ...-PU/ NU-...-M8 | ...-PU/ NU-...-LE |
|---|---|--|
| Design type | For T-slot | |
| Based on standard | EN 60947-5-2 | |
| Certification | RCM | |
| | c UL us listed (OL) | |
| Certificate issuing authority | UL E232949 | |
| CE marking (see declaration of conformity) | To EU EMC Directive To EU RoHS Directive | |
| KC mark | KC EMC | |
| UKCA marking (see declaration of conformity) ¹⁾ | To UK instructions for EMC To UK RoHS instructions | |
| Note on materials | Free of copper and PTFE RoHS-compliant Halogen-free | |
| PWIS conformity | VDMA24364-B2-L | |
| Suitable for the production of lithium-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 to ISO 14644-1 |

¹⁾ For information about the area of use, see the EC declaration of conformity at: www.festo.com/catalogue/... → 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.

Input signal/measuring element

| | | |
|-----------------------------|---------------|-------------|
| Measuring principle | Magnetic Hall | |
| Measured variable | Position | |
| Ambient temperature | [°C] | –40 ... +85 |
| UL ambient temperature | | |
| Fixed cable installation | [°C] | –40 ... +80 |
| Flexible cable installation | [°C] | –20 ... +80 |


Signal processing

| | | |
|----------------------|-------|---|
| Max. speed of travel | [m/s] | 3 |
|----------------------|-------|---|

Datasheet – Magnetic Hall

| Switching output | | ...-PU-... | ...-NU-... |
|---|--------|--------------------------------|------------|
| Switching output | | PNP/NPN, switchable | |
| Switching element function | | N/O or N/C contact, switchable | |
| Repetition accuracy | [mm] | 0.1 | |
| Hysteresis | [mm] | 0.2 | |
| Switch-on time | [ms] | ≤ 2 | |
| Switch-off time | [ms] | ≤ 2 | |
| Max. switching frequency | [Hz] | 200 | |
| Max. output current | [mA] | 100 | |
| Max. output current in mounting kits | [mA] | 100 | |
| Max. switching capacity DC | [W] | 2.8 | |
| Max. switching capacity DC in mounting kits | [W] | 2.8 | |
| Voltage drop | [V] | < 1.5 | |
| Minimum load current | [mA] | 0.15 | |
| Residual current | [mA] | < 0.2 | |
| Output, additional data | | | |
| Short circuit current rating | | Yes | |
| Overload protection | | Available | |
| Electronic | | | |
| Rated operating voltage | [V DC] | 24 | |
| Operating voltage range | [V DC] | 10 ... 30 | |
| Reverse-polarity protection | | For all electrical connections | |

Datasheet – Magnetic Hall

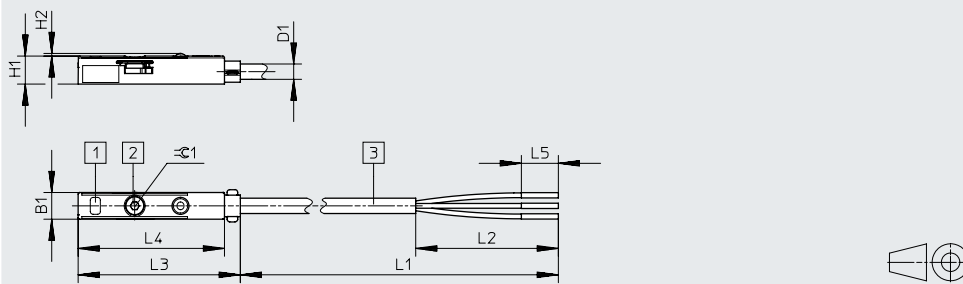
| Electromechanics | | ...-PU/ NU-...-M8 | ...-PU/ NU-...-LE |
|--|------|---|-------------------|
| Electrical connection | | Cable with plug, screw-type lock M8x1, A-coded to EN 61076-2-104 | Cable Open end |
| Number of pins/wires | | 3 | |
| Connection pattern | |  | – |
| Outlet direction of connection | | In-line | |
| Cable characteristic | | Suitable for energy chains/robot applications | |
| Cable test conditions | | Cable chain: 5 million cycles, bending radius 28 mm | |
| | | Torsional resistance: > 300,000 cycles, ±270°/0.1 m | |
| | | Resistance to bending: to Festo standard; test conditions on request | |
| Mechanical system | | ...-PU/ NU-...-M8 | ...-PU/ NU-...-LE |
| Type of mounting | | Screw-clamped, inserted in the slot from above | |
| Mounting position | | Any | |
| Max. tightening torque | [Nm] | 0.6 | |
| Housing material | | High-alloy stainless steel | |
| | | Reinforced PA | |
| | | Nickel-plated brass | – |
| Housing colour | | Black | |
| 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 flexible cable installation | [°C] | –5 ... 85 | |
| Degree of protection | | IP68 | |

Datasheet – Magnetic Hall

Dimensions, open end

Download CAD data → www.festo.com

SDBT-MSX-1L-...-U-E-...-N-LE



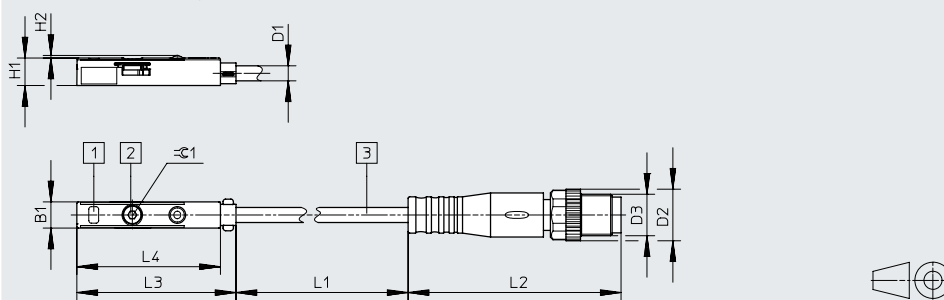
- [1] Yellow and green LED
- [2] Retaining screw with internal hexagon
- [3] Connecting cable

| Type | 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 | 41.1 | 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 with plug

Download CAD data → www.festo.com

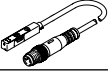

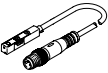

SDBT-MSX-1L-...-U-E-0.3-N-M8



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

| Type | 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 | | | | | | | | | | | |

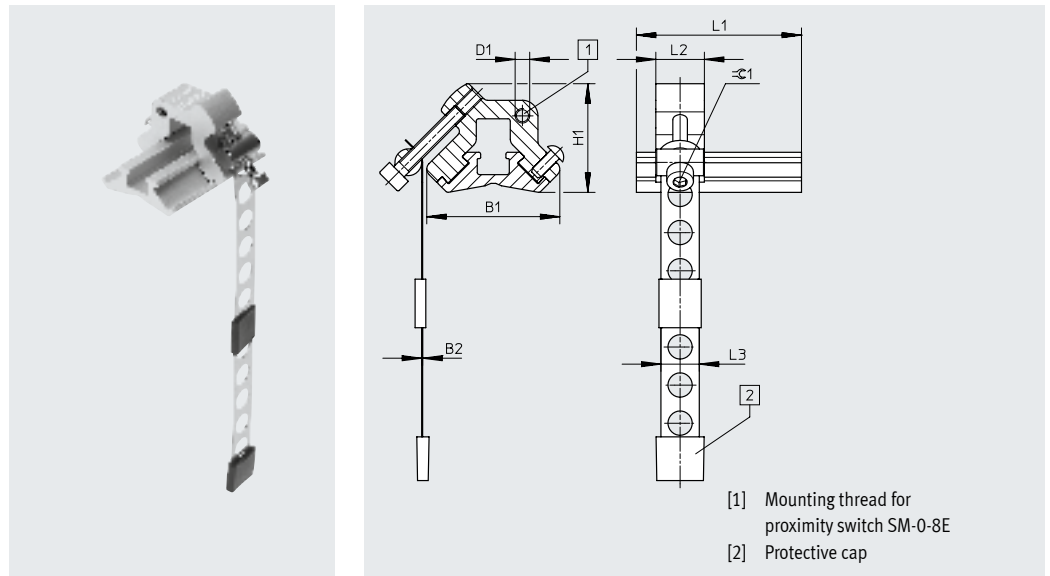
Datasheet – Magnetic Hall

| Ordering data | | Cable length | Weight | Part no. | Type |
|--|-------------------------|--------------|--------|-----------|---------------------------|
| | Switching output | [m] | [g] | | |
| N/O | | | | | |
|  | 3-wire N/O contact, PNP | 0.3 | 10 | ★ 8059120 | SDBT-MSX-1L-PU-E-0.3-N-M8 |
|  | 3-wire N/O contact, PNP | 2.5 | 29 | ★ 8059121 | SDBT-MSX-1L-PU-E-2.5-N-LE |
| | | 5 | 56 | ★ 8059122 | SDBT-MSX-1L-PU-E-5-N-LE |
|  | 3-wire N/O contact, NPN | 0.3 | 10 | ★ 8059123 | SDBT-MSX-1L-NU-E-0.3-N-M8 |
|  | 3-wire N/O contact, NPN | 2.5 | 29 | ★ 8059124 | SDBT-MSX-1L-NU-E-2,5-N-LE |
| | | 5 | 56 | ★ 8059125 | SDBT-MSX-1L-NU-E-5-N-LE |

Accessories

Mounting kit SMBR-8-8/100-S6

Material:
Rail: Anodised wrought aluminium alloy
Clamping strap, screws: High-alloy stainless steel
Free of copper and PTFE
RoHS-compliant

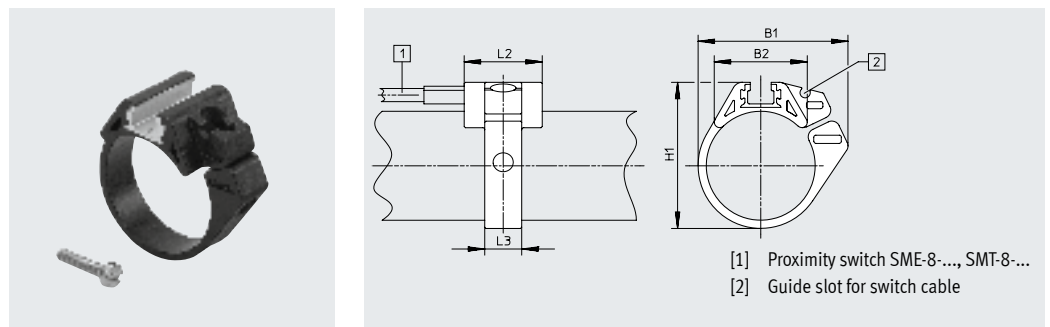


| Dimensions and ordering data | | | | | | | | | | | |
|------------------------------|------|-----|----|------|----|----|-----|-----------|-------------------|----------|-----------------|
| For piston \varnothing | B1 | B2 | D1 | H1 | L1 | L2 | L3 | ± 0.1 | CRC ¹⁾ | Part no. | Type |
| 8 ... 100 | 27.4 | 0.2 | M3 | 22.4 | 34 | 10 | 7.9 | 2.5 | 4 | ★ 538937 | SMBR-8-8/100-S6 |

1) Corrosion resistance class CRC 4 to Festo standard FN 940070
Particularly high corrosion stress. Outdoor exposure under extreme corrosive conditions. Parts exposed to aggressive media, e.g. in the chemical or food industries. Such applications may need to be safeguarded by special testing (→ also FN 940082), using appropriate media.

Mounting kit SMBR

Material:
Polyacetal
RoHS-compliant

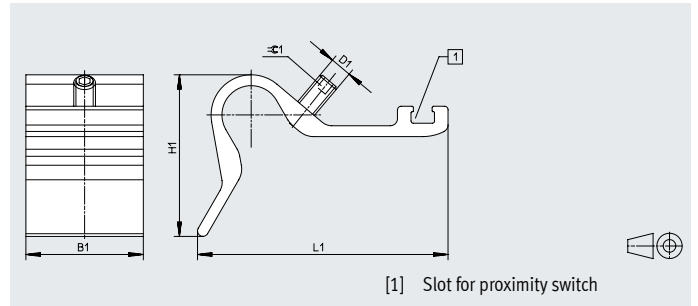


| Dimensions and ordering data | | | | | | | |
|------------------------------|------|------|------|----|----|----------|-----------|
| For piston \varnothing | B1 | B2 | H1 | L2 | L3 | Part no. | Type |
| 8 | 18.9 | 12.3 | 17.5 | 19 | 7 | 175091 | SMBR-8-8 |
| 10 | 20.4 | 13.7 | 19.9 | 19 | 7 | 175092 | SMBR-8-10 |
| 12 | 22.7 | 14.3 | 21.9 | 19 | 7 | ★ 175093 | SMBR-8-12 |
| 16 | 28.2 | 16.9 | 25.7 | 19 | 8 | ★ 175094 | SMBR-8-16 |
| 20 | 34.5 | 20.8 | 30.4 | 19 | 9 | ★ 175095 | SMBR-8-20 |
| 25 | 36.7 | 22.7 | 35.6 | 19 | 9 | ★ 175096 | SMBR-8-25 |
| 32 | 41.7 | 24.6 | 42.7 | 19 | 9 | 175097 | SMBR-8-32 |
| 40 | 47.1 | 26.5 | 50.7 | 19 | 9 | 175098 | SMBR-8-40 |
| 50 | 56.4 | 28.6 | 61.5 | 19 | 9 | 175099 | SMBR-8-50 |
| 63 | 69.4 | 32 | 74.5 | 19 | 9 | 175100 | SMBR-8-63 |

Accessories

Sensor bracket DASP-M4-...-A

Material:
Anodised wrought aluminium alloy
Screws: High-alloy stainless steel
RoHS-compliant



[1] Slot for proximity switch

| Dimensions and ordering data | | | | | | | | | | | |
|------------------------------|------|----|------|------|-------------|------------------------|-------------------|------------|----------|---------------|--|
| Type | B1 | D1 | H1 | L1 | ≈ 1 | Tightening torque [Nm] | CRC ¹⁾ | Weight [g] | Part no. | Type | |
| DASP-M4-125-A | 32.5 | M5 | 28 | 45.4 | 2.5 | 1 | 3 | 26.5 | 1451483 | DASP-M4-125-A | |
| DASP-M4-160-A | 32.5 | M6 | 44.7 | 69.4 | 3 | 1 | 3 | 41.5 | 1553813 | DASP-M4-160-A | |
| DASP-M4-250-A | 32.5 | M6 | 56.3 | 88 | 3 | 1 | 3 | 60 | 1456781 | DASP-M4-250-A | |
| DASP-M4-320-A | 32.5 | M6 | 56.3 | 88 | 3 | 1 | 3 | 60 | 3015256 | DASP-M4-320-A | |

1) Corrosion resistance class CRC 3 to Festo standard FN 940070

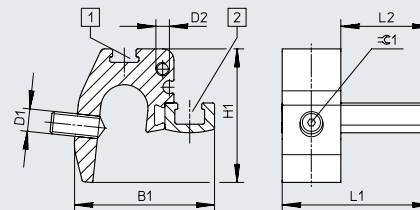
High corrosion stress. Outdoor exposure under moderate corrosive conditions. Externally visible parts with primarily functional surface requirements which are in direct contact with a normal industrial environment.

Mounting SMBZ-8-...

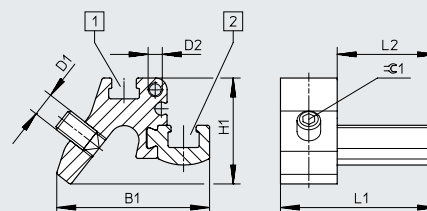
Design: For tie rods
Mounting position: Any
Type of mounting: Clamped
Tightening torque: ≤ 0.5 Nm
Ambient temperature:
-40 ... +120°C
PWIS conformity:
VDMA24364-B2-L



SMBZ-8-32/100



SMBZ-8-125/320



[1] Slot for inscription label
[2] Slot for proximity switch

| Dimensions and ordering data | | | | | | | | | | | |
|------------------------------|------|----|----|----|----|----|-------------|------------|-------------------|----------|----------------|
| For piston \varnothing | B1 | D1 | D2 | H1 | L1 | L2 | ≈ 1 | Weight [g] | CRC ¹⁾ | Part no. | Type |
| 32 ... 100 | 31 | M5 | M3 | 30 | 33 | 20 | 1.5 | 14 | 2 | 537806 | SMBZ-8-32/100 |
| 125 ... 320 | 32.3 | | | 22 | | | 2.5 | | | 537808 | SMBZ-8-125/320 |

1) Corrosion resistance class CRC 2 to Festo standard FN 940070

Moderate corrosion stress. Indoor application where condensation is allowed to occur. External visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment.

Accessories

Positioning element SMM

Inserted into slot from the side

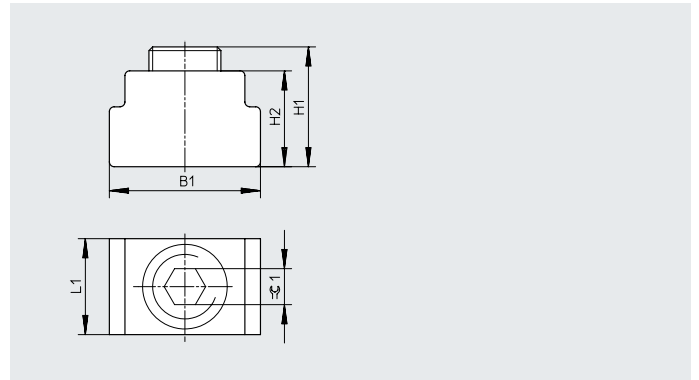
Ambient temperature: -40 ... +120°C

Materials:

Housing: Anodised wrought aluminium alloy

Screws: High-alloy stainless steel

Note on materials: RoHS-compliant







| Dimensions and ordering data | | | | | | | | | |
|------------------------------|-----|-----|-----|-----|-------------------|----------|-------|------------------|--|
| B1 | H1 | H2 | L1 | ∅1 | CRC ¹⁾ | Part no. | Type | PU ²⁾ | |
| 6.3 | 5.0 | 4.0 | 4.0 | 1.5 | 3 | 547941 | SMM-8 | 10 | |

1) Corrosion resistance class CRC 3 to Festo standard FN 940070


High corrosion stress. Outdoor exposure under moderate corrosive conditions. Externally visible parts with primarily functional surface requirements which are in direct contact with a normal industrial environment.


2) Packaging unit

Accessories


| Ordering data – Connecting cables | | | | | Datasheets → Internet: nebu/sim | |
|--|---|-----------------|------------------|----------|---------------------------------|--|
| | | Number of wires | Cable length [m] | Part no. | Type | |
| Socket M8x1, 3-pin | | | | | | |
|  | For SMT/SME-8... and SMTO/SMTSO/SME0-8E | 3 | 2.5 | ★ 541333 | NEBU-M8G3-K-2.5-LE3 | |
| | | | 5 | ★ 541334 | NEBU-M8G3-K-5-LE3 | |
|  | For SMT/SME-8... and SMTO/SMTSO/SME0-8E | 3 | 2.5 | ★ 541338 | NEBU-M8W3-K-2.5-LE3 | |
| | | | 5 | ★ 541341 | NEBU-M8W3-K-5-LE3 | |
| Socket M12x1, 5-pin | | | | | | |
|  | For SMT/SME-8M and SMTO/SMTSO/SME0-8E | 3 | 2.5 | ★ 541363 | NEBU-M12G5-K-2.5-LE3 | |
| | | | 5 | ★ 541364 | NEBU-M12G5-K-5-LE3 | |
|  | For SMT/SME-8M and SMTO/SMTSO/SME0-8E | 3 | 2.5 | 541367 | NEBU-M12W5-K-2.5-LE3 | |
| | | | 5 | 541370 | NEBU-M12W5-K-5-LE3 | |

| Ordering data – Mounting components | | | |
|--|---------------------------------------|----------|--------|
| | Description | Part no. | Type |
|  | For fixing connecting cables in place | 534254 | SMBK-8 |

| Ordering data – Sensor tester | | | |
|--|---|----------|-----------|
| | Description | Part no. | Type |
|  | <ul style="list-style-type: none"> • Testing the functionality of proximity switches using the integrated voltage supply • Adjusting proximity switches on the cylinder | 158481 | SM-TEST-1 |

| Ordering data – Inscription labels | | | | |
|--|---------|----------|------------|------------------|
| | Size | Part no. | Type | PU ¹⁾ |
|  | 23x4 mm | 541598 | ASLR-L-423 | 34 |

1) Packaging unit

| Ordering data – Inscription label holder | | | | | | | |
|--|--------|--------|---------|--------------------|----------|-----------|------------------|
| | Length | Width | Height | For cable diameter | Part no. | Type | PS ¹⁾ |
|  | 23 mm | 5.4 mm | 10.3 mm | 2.5 ... 3.5 mm | 8078306 | NEAU-LH-2 | 100 |

1) Pack size