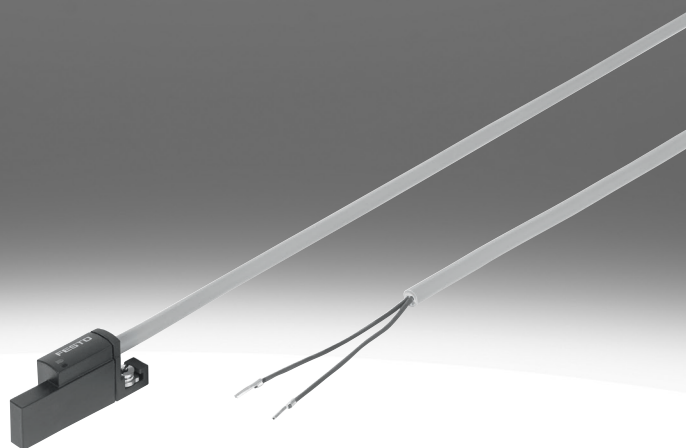


Proximity switch SDBT-BSW

FESTO



Characteristics

At a glance

For contactless piston rod position sensing on FESTO pneumatic cylinders, in particular the hinge cylinder DWx for the automotive and tier 1 supplier industry, in low and medium frequency welding installations (50/60 Hz, 1000 Hz) with strong constant or alternating magnetic fields.

When using the SDBT-BSW on drives other than the DWx series, multiple switching can occur.

The SDBT-BSW-...-ZU-... (2-wire version for 50/60 Hz AC) can be used on all drives.

The SDBT-BSW-...-PU/NU-... (3-wire version for 50/60 Hz AC and 1000 Hz MFDC). The application range should be checked where necessary.

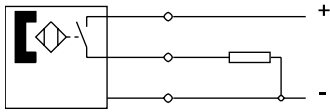
Type code

| | | |
|------|-----------------------------------------------|--|
| 001 | Series | |
| SDBT | Sensor, position, binary, T series | |
| 002 | Sensor version | |
| B | Can be inserted in the slot, clamping at rear | |
| 003 | Sensor principle | |
| S | Contactless (solid state) | |
| 004 | Additional features | |
| W | Welding field immune | |
| 005 | Nominal operating voltage | |
| 1 | 24 V DC | |
| 006 | Display | |
| L | LED | |

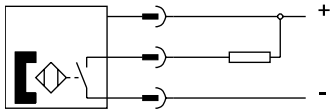
| | | |
|-----|------------------------------|--|
| 007 | Digital switching output | |
| NU | 3-wire N/O contact, NPN | |
| PU | 3-wire N/O contact, PNP | |
| ZU | 2-wire N/O contact | |
| 008 | Cable characteristic | |
| W | Resistant to welding spatter | |
| 009 | Cable length [m] | |
| 0.3 | 0.3 m | |
| 5 | 5 m | |
| 010 | Cable identification | |
| N | Without label holder | |
| 011 | Electrical connection | |
| LE | Open end | |
| M12 | Plug M12, A-coded | |

Datasheet

General technical data



- Oil-resistant
- Welding-field-resistant, AC 50 ... 60 Hz, MFDC 1000 Hz
- Resistant to welding spatter
- UV-resistant



| | |
|----------------------------------------------------------|-------------------------------------------------------------------------------------------------------|
| Instructions on use | https://www.festo.com/Drive-Sensor-Overview |
| Design | For T-slot |
| Based on standard | EN 60947-5-2 |
| Approval | RCM trademark, c UL us listed (OL) |
| Special characteristics | UV resistant, Oil resistant, Welding field resistant, Resistant to welding spatter |
| Switching behavior during welding process | Output signal freezes |
| CE mark (see declaration of conformity) | To EU EMC Directive, In accordance with EU RoHS Directive |
| CE marking (see declaration of conformity) ¹⁾ | To UK instructions for EMC, To UK RoHS instructions |
| Note on materials | RoHS-compliant |

1) For information about the area of use, see the declaration of conformity at: www.festo.com/catalogue/...d/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 | Magneto-resistive |
| Measured variable | Position |
| Ambient temperature | -25 ... 85°C |

Signal processing

| | |
|-------------------|-------|
| Max. travel speed | 1 m/s |
|-------------------|-------|

Switching output

| | |
|------------------------------------------------|----------------------------------|
| Switching output | NPN, PNP, Non-contacting, 2-wire |
| Switching element function | N/O contact |
| Repetition accuracy | 0.2 mm |
| Switch-on time | ≤15 ms |
| Switch-off time | ≤25 ms |
| Max. switching frequency | 25 Hz |
| Max. output current | 80 ... 100 mA |
| Max. output current using mounting kits | 80 ... 100 mA |
| Max. switching capacity DC | 1.9 ... 2.8 W |
| Max. switching capacity DC using mounting kits | 1.9 ... 2.8 W |
| Voltage drop | <6 V |
| Min. load current | 0 ... 2.4 mA |
| Off-state current | <0.7 mA |

Output, further 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

| | |
|------------------------------------------------------|-----------------------------------------------------------------|
| Switching output | NPN, PNP, Non-contacting, 2-wire |
| Electrical connection 1, connection type | Cable, Cable with plug |
| Electrical connection 1, connector system | M12x1, A-coded to EN 61076-2-101, Open end |
| Electrical connection 1, number of connections/cores | 2 ... 3 |
| Connection outlet orientation | In-line |
| Cable characteristic | Resistant to welding spatter |
| Test conditions cable | Bending strength: to Festo standard, Test conditions on request |

Mechanics

| | |
|-----------------------------|--------------------------------------------------------|
| Switching output | NPN, PNP, Non-contacting, 2-wire |
| Type of mounting | Screw-clamped, Insertable in the slot from above |
| Mounting position | optional |
| Max. tightening torque | 0.6 Nm |
| Material housing | Epoxy resin, PA-reinforced, High-alloy stainless steel |
| Material union nut | Nickel-plated brass |
| Material cable sheath | PVC, irradiated |
| Material insulating sheath | PVC |
| Material connector housing | TPE-U(PU) |
| Wire ends | Wire end sleeve |
| Material electrical contact | Brass, nickel-plated and gold-plated |

Display/operation

| | |
|-----------------------------|------------|
| Switching status indication | Yellow LED |
| Function reserve indication | Orange LED |

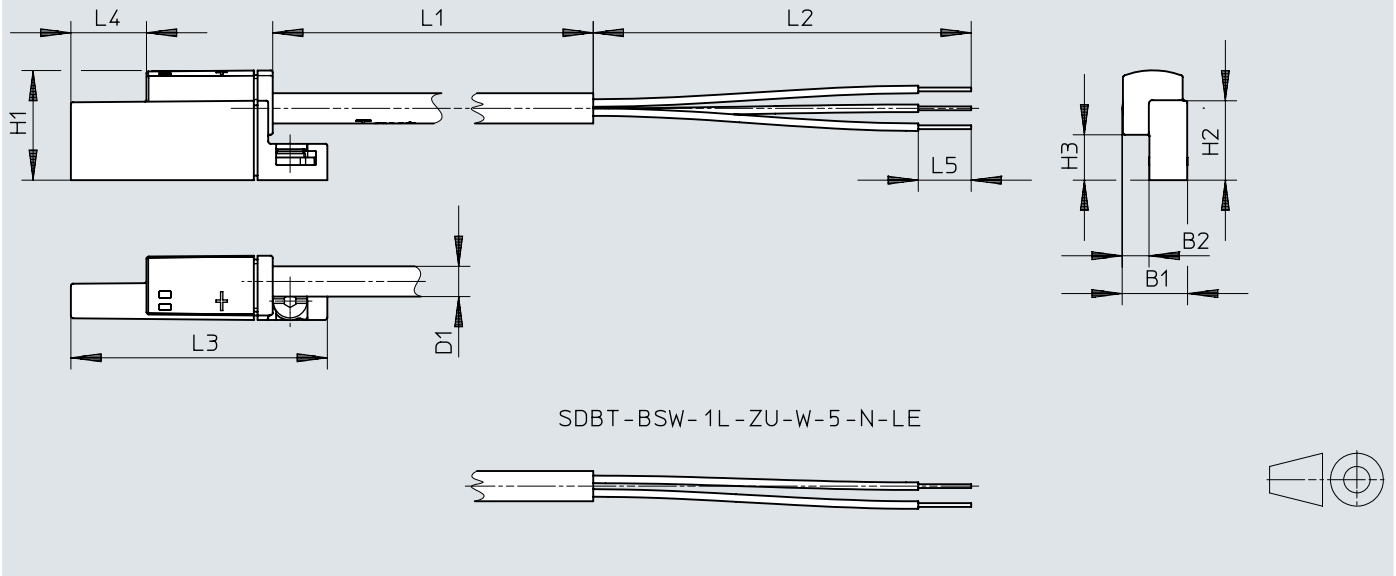
Immission/emission

| | |
|---------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Ambient temperature with moving cable | -5 ... 80°C |
| Degree of protection | IP65, IP68 |
| Inductive protective circuit | Adapted to MZ, MY, ME coils |
| Immunity to magnetic fields | Insensitive to alternating magnetic fields (50...60 Hz) < 160 mT, Insensitive to alternating magnetic fields (50...60 Hz) < 200 mT, Insensitive to MFDC magnetic fields (1000 Hz) < 200 mT, Design insensitive to permanent magnetic fields < Bon |

Dimensions

Dimensions – Proximity switch, open end

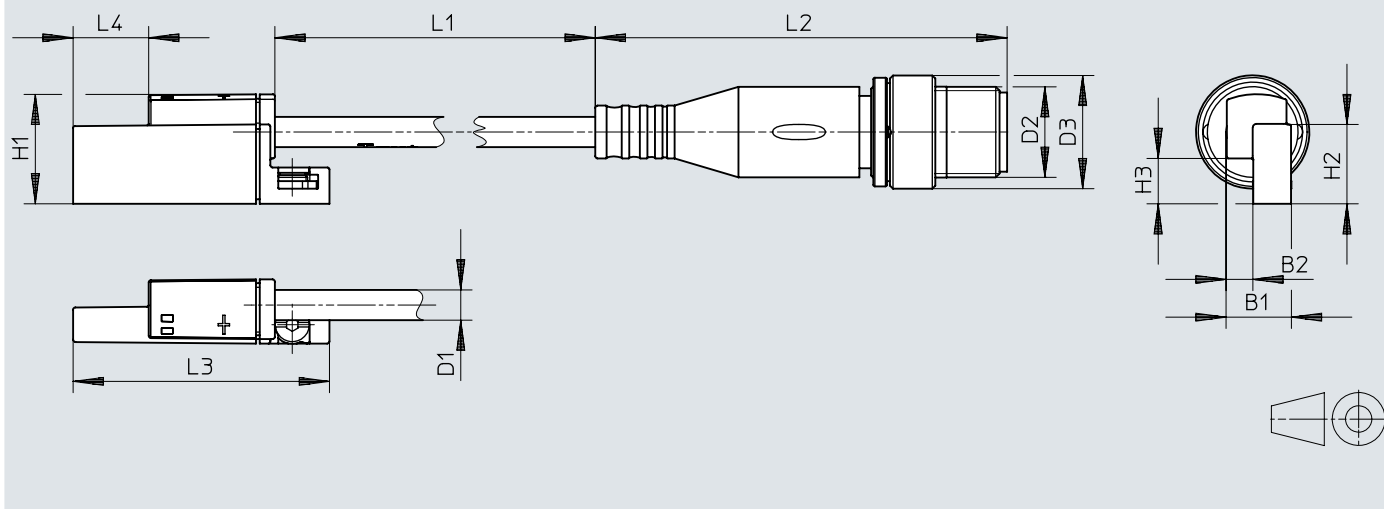
Download CAD data → www.festo.com



| | B1 | B2 | D1 ∅ | H1 | H2 | H3 | L1 | L2 | L3 | L4 | L5 |
|-------------------------|-----|-----|---------|------|------|----|------|----|----|----|----|
| SDBT-BSW-1L-PU-W-5-N-LE | | | | | | | | | | | |
| SDBT-BSW-1L-ZU-W-5-N-LE | 8,5 | 3,5 | 4 | 14,5 | 10,5 | 6 | 5000 | 50 | 34 | 10 | 7 |
| SDBT-BSW-1L-NU-W-5-N-LE | | | | | | | | | | | |

Dimensions

Dimensions – Proximity switch with plug

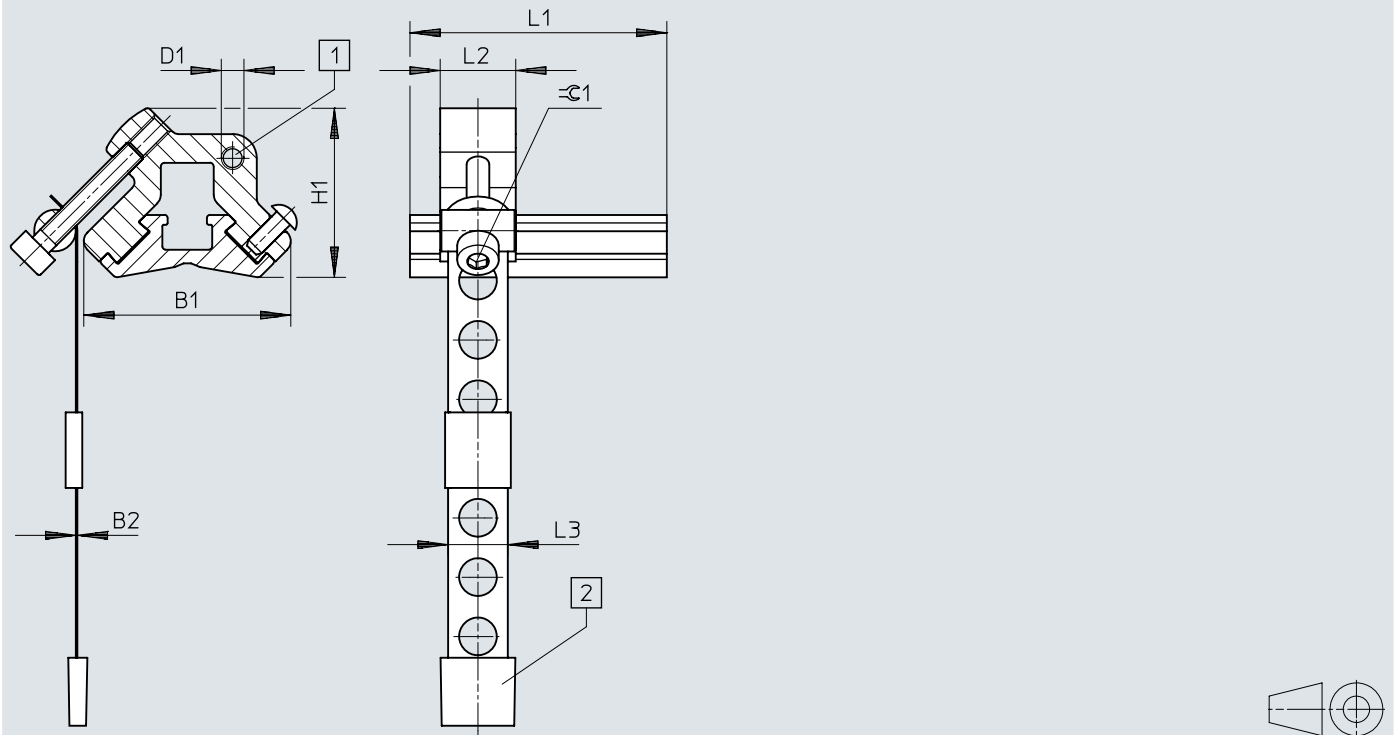
Download CAD data → www.festo.com

| | B1 | B2 | D1 ∅ | D2 | D3 ∅ | H1 | H2 | H3 | L1 | L2 | L3 | L4 |
|----------------------------|-----|-----|---------|-----|---------|------|------|----|-----|------|----|----|
| SDBT-BSW-1L-PU-W-0,3-N-M12 | 8,5 | 3,5 | 4 | M12 | 15 | 14,5 | 10,5 | 6 | 300 | 54,5 | 34 | 10 |
| SDBT-BSW-1L-NU-W-0,3-N-M12 | | | | | | | | | | | | |

Dimensions

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

Download CAD data → www.festo.com



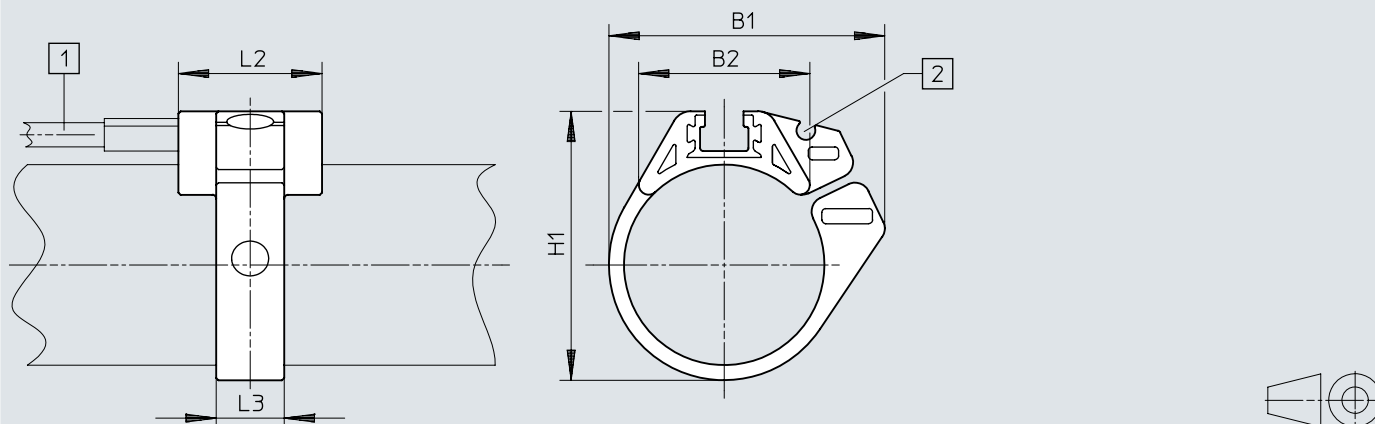
[1] Mounting thread for proximity switch SM ... O-8E

[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

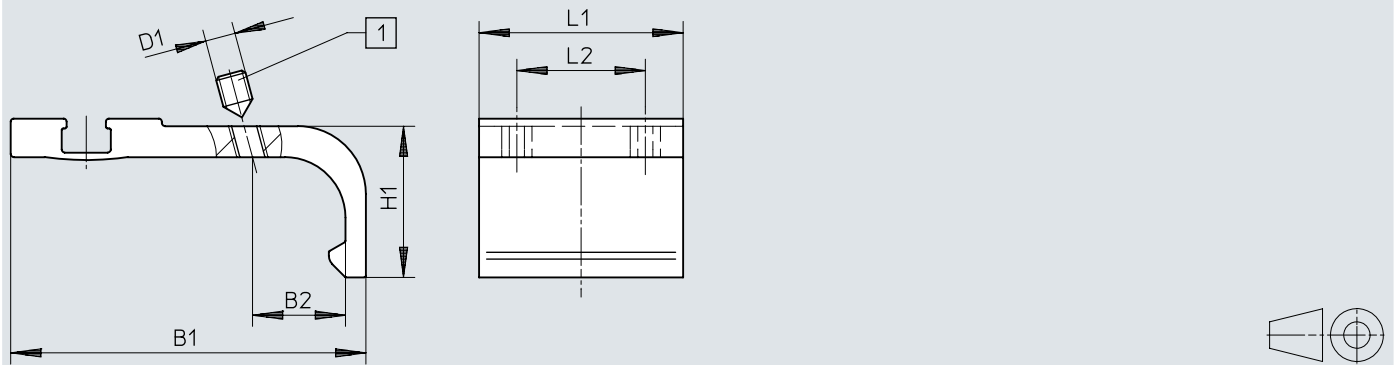
- [1] Proximity switches SME-8- ..., SMT-8- ...
 [2] Guide slot for switch cable

| | 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 – Mounting kit SMB-8-FENG

Download CAD data → www.festo.com

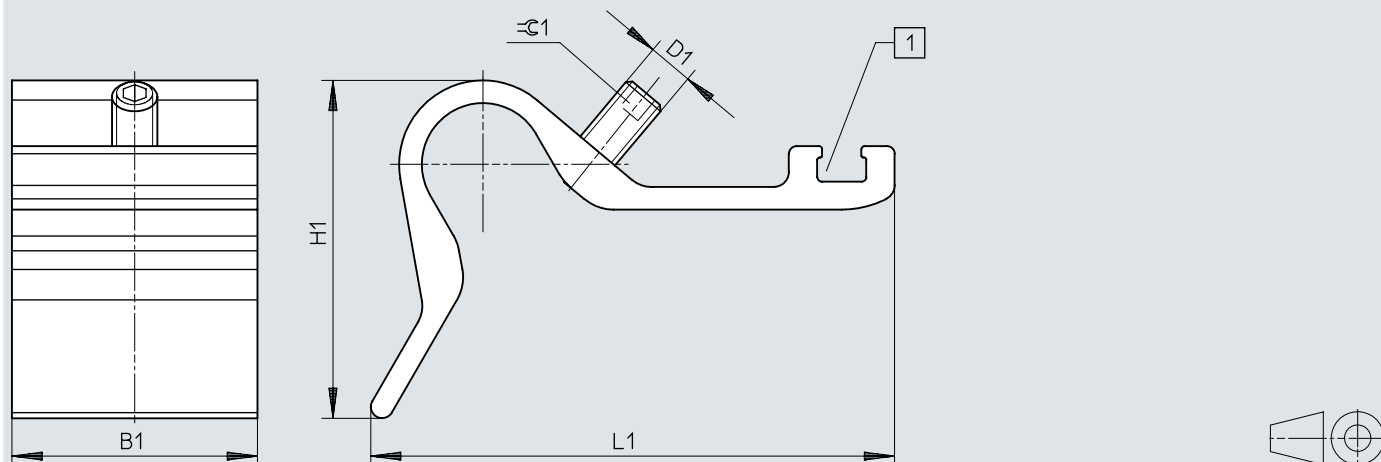


[1] Threaded pin

| | B1 | B2 | D1 | H1 | L1 | L2 |
|-------------------|------|------|----|------|----|----|
| SMB-8-FENG-32/40 | 35,1 | 8,7 | M3 | 15,5 | 27 | 17 |
| SMB-8-FENG-50/63 | 47 | 12,3 | M4 | 20 | 27 | 17 |
| SMB-8-FENG-80/100 | 64,3 | 15,7 | M5 | 24,3 | 27 | 17 |

Dimensions

Dimensions – Sensor bracket DASP-M4-...-A

Download CAD data → www.festo.com

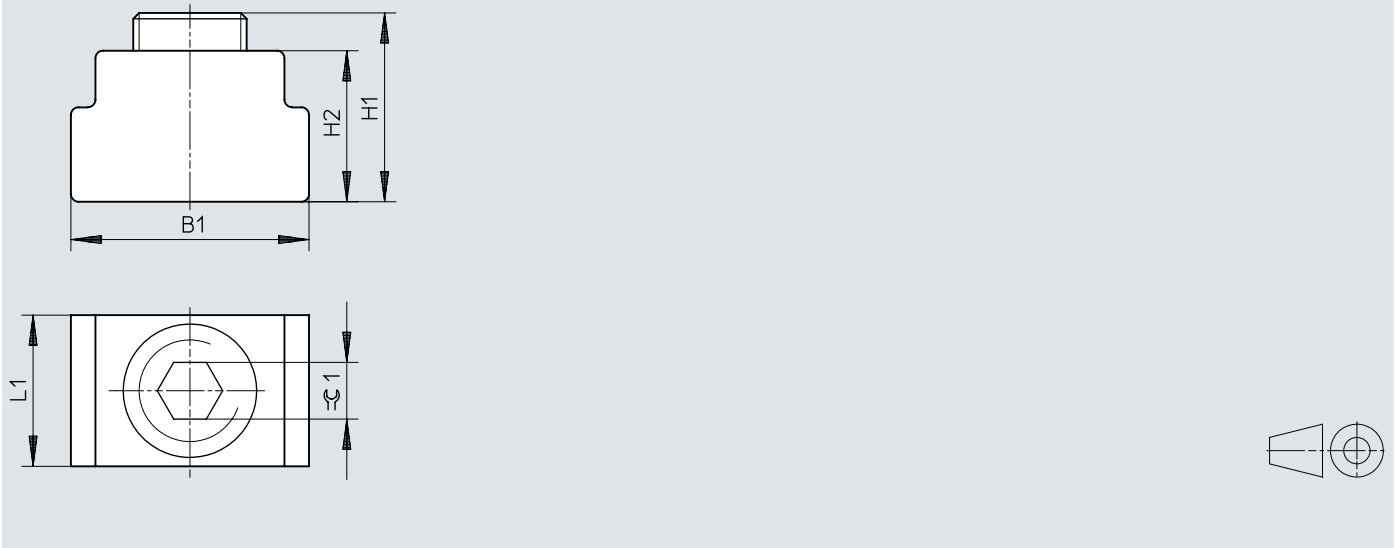
[1] Slot for proximity switch

| | 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

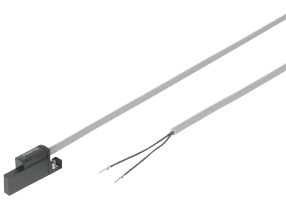
Dimensions – Positioning element SMM

Download CAD data → www.festo.com



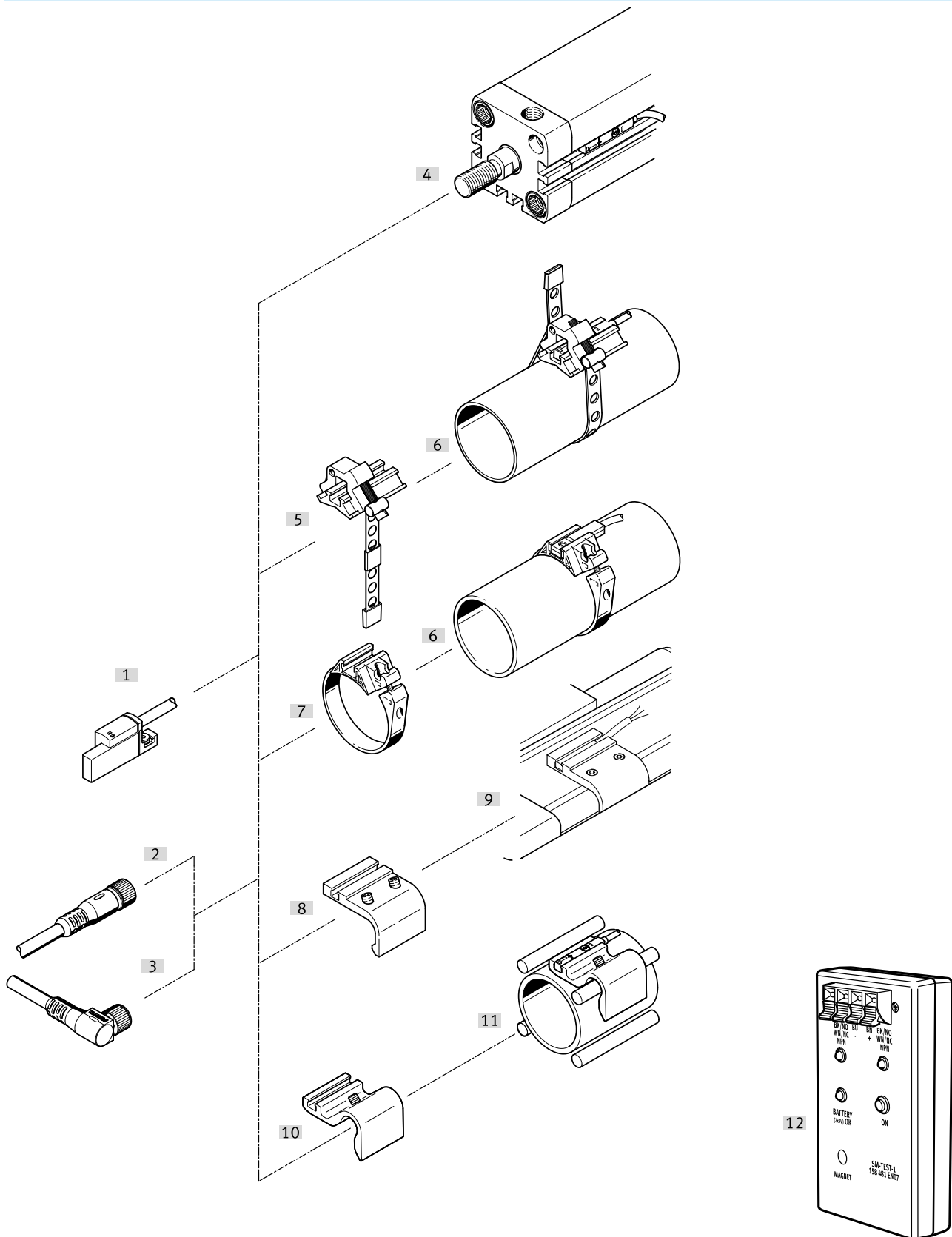
| | B1 | H1 | H2 | L1 | ☞1 |
|-------|-----|-----|-----|-----|-----|
| SMM-8 | 6,3 | 5,0 | 4,0 | 4,0 | 1,5 |

Ordering data

| Proximity switch | | | | | | |
|-----------------------------------------------------------------------------------|------------------------|--------------|----------------|----------|----------------------------|-------------------------|
| | Switching output | Cable length | Product weight | Part no. | Type | |
|  | NPN | 0.3 m | 23.3 g | 2427615 | SDBT-BSW-1L-NU-W-0.3-N-M12 | |
| | | 5 m | 119.4 g | 2427618 | SDBT-BSW-1L-NU-W-5-N-LE | |
| | PNP | 0.3 m | 23.3 g | 2476855 | SDBT-BSW-1L-PU-W-0.3-N-M12 | |
| | | 5 m | 119.4 g | 2427616 | SDBT-BSW-1L-PU-W-5-N-LE | |
| | Non-contacting, 2-wire | | | 116.9 g | 2427617 | SDBT-BSW-1L-ZU-W-5-N-LE |
| | | | | | | |

Peripherals

Peripherals overview





| Accessories | | | → Page/Internet |
|-------------------------------------|-------------------------|--|-----------------|
| Type/order code | Description | | |
| [1] Proximity switch SDBT-BSW | Welding-field-resistant | | sdbt |
| [2] Connecting cables NEBU-M...G... | Straight socket | | 16 |

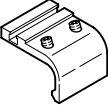
Peripherals


| Accessories | | → Page/Internet |
|------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| Type/order code | Description | |
| [3] Connecting cables NEBU-M...W... | Angled socket | 17 |
| [4] Drives with T-slot | – | – |
| [5] Mounting kit SMBR-8-8/100-S6 | Heat-resistant design | 16 |
| [6] Round cylinders | Ex.: DSNU | – |
| [7] Mounting kit SMBR | For round cylinders | 16 |
| [8] Mounting kit SMB-8-FENG | – | 16 |
| [9] Standards-based cylinder DSBC | – | dsbc |
| [10] Sensor bracket DASP-M4-... | – | 16 |
| [11] Drives with tie rod or mounting rod | For example: DSBG | – |
| [12] Sensor tester SM-TEST-1 | Checking that the proximity switches are functioning using the built-in voltage source. Adjusting proximity switches on the cylinder. | 17 |


Accessories


| Mounting kit SMBR-8-8/100-S6 | | | | | |
|----------------------------------------------------------------------------------|---------------------|---------------------------------------------------------------|--------------------------------|----------|-----------------|
| | For piston diameter | Material housing | Corrosion resistance class CRC | Part no. | Type |
|  | Ø8 - Ø100 | Wrought aluminium alloy, Anodised, High-alloy stainless steel | 4 - Very high corrosion stress | 538937 | SMBR-8-8/100-S6 |

| Mounting kit SMBR | | | | | | |
|----------------------------------------------------------------------------------|----------------------------|-------------------------|---------------------|--------------------------------|----------|-----------|
| | Material retaining bracket | Material profile | Ambient temperature | Corrosion resistance class CRC | Part no. | Type |
|  | POM | Wrought aluminium alloy | -20 ... 70 °C | 2 - Moderate corrosion stress | ★ 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 | | | | | |


| Mounting kit SMB-8-FENG | | | | | |
|------------------------------------------------------------------------------------|------|-------------------|------------------------|----------|-------------------|
| | Size | Note on materials | LABS (PWIS) conformity | Part no. | Type |
|  | 8 | RoHS-compliant | VDMA24364-B2-L | 175706 | SMB-8-FENG-50/63 |
| | | | | 175707 | SMB-8-FENG-80/100 |
| | | | | 175705 | SMB-8-FENG-32/40 |


| Sensor bracket DASP-M4-...-A | | | | | |
|------------------------------------------------------------------------------------|-------------------|-----------------------------------|--------------------------------|----------|---------------|
| | Tightening torque | Material housing | Corrosion resistance class CRC | Part no. | Type |
|  | 0.6 ... 1 Nm | Wrought aluminium alloy, Anodised | 3 - high corrosion stress | 1451483 | DASP-M4-125-A |
| | | | | 3015256 | DASP-M4-320-A |
| | | | | 1553813 | DASP-M4-160-A |
| | | | | 1456781 | DASP-M4-250-A |

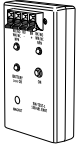
| Positioning element SMM | | | | | | |
|------------------------------------------------------------------------------------|-----------------------------------|------------------------------------------------------|---------------------|--------------------------------|----------|-------|
| | Material housing | Type of mounting | Ambient temperature | Corrosion resistance class CRC | Part no. | Type |
|  | Wrought aluminium alloy, Anodised | Clamped in T-slot, Insertable in the slot lengthwise | -40 ... 120 °C | 3 - high corrosion stress | 547941 | SMM-8 |

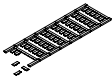
| Connecting cables M12x1 socket, 5-pin, straight socket | | | | | |
|------------------------------------------------------------------------------------|------------------------------------------------------|-------------------------------------------|--------------|----------|----------------------|
| | 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 |

Accessories

| 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 |