

Position transmitter SDAC-MHS

FESTO



Characteristics

At a glance

The SDAC-MHS is used for providing contactless feedback on the piston position of actuators that can be sensed magnetically. An IO-Link® version and a variant with classic 0-10V analogue output are available. Its compact small design makes the SDAS-MHS the ideal solution for grippers, compact cylinders and in all applications where installation space is limited.

The IO-Link® variant covers two functions in one device.

1. As a position transmitter, it provides an output signal proportional to the motion within the sensing range, with the signal being made available in the IO-Link® communication standard. Furthermore, in the IO-Link® version, 4 channels can be programmed via IO-Link® as proximity switch, window comparator or hysteresis comparator.

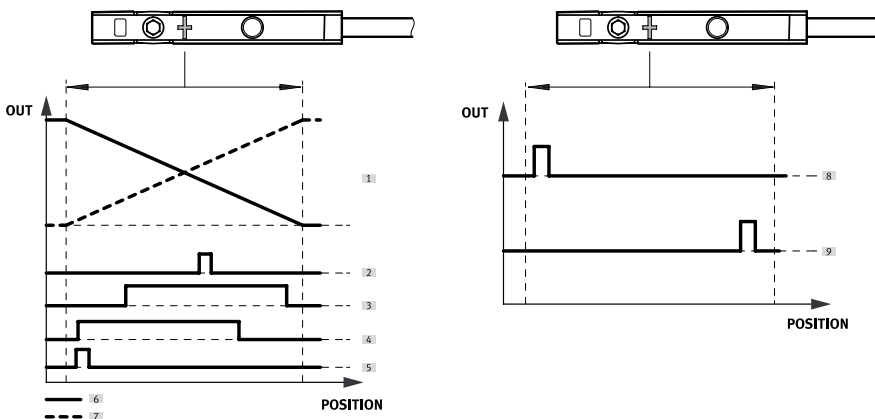
2. As a programmable proximity switch, the SDAS-MHS provides binary feedback on the piston position, which is made available as a standard 24V output signal. Additionally, two switching points for the proximity switch can be taught in within the sensing range via a capacitive operating button directly on the device.

Its very compact design makes the SDAC-MHS the ideal solution for grippers, compact cylinders and in all applications where installation space is limited.

Applications position transmitter: continuous position feedback e.g. for good/bad selection, press-fitting, riveting, ultrasonic welding, etc.

Applications with proximity switch function for binary position feedback. Having two proximity switches in one device saves space on small drives and saves time during installation and commissioning.

Description



Example IO-Link® variant:

- [1] PDV (position data valves)
- [2] SSC1 (switching signal channel)
- [3] SSC2
- [4] SSC3
- [5] SSC4
- [6] Output signal (PDV): direction of increase inverted
- [7] Output signal (PDV): direction of increase as delivered

Example of proximity switch function:

- (8) Switching output 1
- (9) Switching output 2

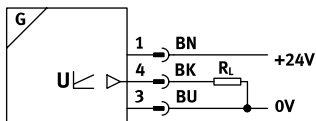
Type code

| | | |
|-------------|----------------------------------|--|
| 001 | Series | |
| SDAC | Position transmitter | |
| 002 | Sensor version | |
| M | Can be inserted in the slot | |
| 003 | Sensor principle | |
| HS | Hall sensor | |
| 004 | Measuring range | |
| M20 | Typically up to 20 mm | |
| M30 | Typically up to 30 mm | |
| 005 | Nominal operating voltage | |
| 1 | 24 V DC | |
| 006 | Display | |
| L | LED | |

| | | |
|-------------|------------------------------|--|
| 007 | Electrical output 1 | |
| PNLK | PNP/NPN/IO-Link | |
| V | 0 ... 10 V | |
| 008 | Electrical output 2 | |
| | None | |
| PN | PNP or NPN | |
| 009 | Cable length [m] | |
| 0.3 | 0.3 m | |
| 2.5 | 2.5 m | |
| 010 | Connection outlet | |
| | Axial | |
| 011 | Electrical connection | |
| LE | Open end | |
| M8 | Plug M8, A-coded | |

Datasheet

General technical data, SDAC 0 to 10V

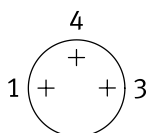


| | |
|--|---|
| Design | For C-slot |
| Mounting position | optional |
| Type of mounting | Screw-clamped, Insertable in the slot lengthwise |
| Instructions on use | Support / actuator-sensor overview”The right sensor for the actuator” |
| Approval | RCM trademark |
| CE mark (see declaration of conformity) | To EU EMC Directive, In accordance with EU RoHS Directive |
| CE marking (see declaration of conformity) | To UK instructions for EMC, To UK RoHS instructions |
| Degree of protection | IP65, IP68 |
| Note on materials | RoHS-compliant, Free of halogen |
| LABS (PWIS) conformity | VDMA24364-B2-L |

Sensors, SDAC 0 to 10V

| | |
|---------------------------|---------------|
| Measured variable | Position |
| Measuring principle | Magnetic Hall |
| Sensing range | 25 mm |
| Ambient temperature | -40 ... 80°C |
| Typical sampling interval | 2 ms |
| Max. travel speed | ≥4 m/s |
| Displacement resolution | 0.047 mm |
| Repetition accuracy | 0.2 mm |
| Typical linearity error | ±2 mm |

Electronics, SDAC 0 to 10V



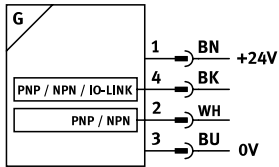
| | |
|-------------------------------------|----------------|
| Operational voltage range DC | 15 ... 30 V |
| Residual ripple | 10% |
| Reverse polarity protection | yes |
| Analogue output | 0 - 10 V |
| Sensitivity | 0.45 V/mm |
| Min. load resistance voltage output | 10 kOhm |
| Short circuit current rating | yes |
| Overload protection | Available |
| Output signal | Analogue |
| No-load supply current | <12 mA |
| Status indication | LED red, green |

Display, operation, SDAC 0 to 10V

| | |
|-----------------------------|----------------|
| Switching status indication | – |
| Status indication | LED red, green |
| Setting options | – |

Datasheet

General technical data, SDAC with IO-Link®



| | |
|--|--|
| Design | For C-slot |
| Mounting position | optional |
| Type of mounting | Screw-clamped, Insertable in the slot lengthwise |
| Instructions on use | Support / actuator-sensor overview "The right sensor for the actuator" |
| Approval | RCM trademark |
| CE mark (see declaration of conformity) | To EU EMC Directive, In accordance with EU RoHS Directive |
| CE marking (see declaration of conformity) | To UK instructions for EMC, To UK RoHS instructions |
| Degree of protection | IP65, IP68 |
| Note on materials | RoHS-compliant, Free of halogen |
| LABS (PWIS) conformity | VDMA24364-B2-L |

Sensors, SDAC with IO-Link®

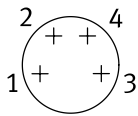
| | |
|---------------------------|---------------|
| Measured variable | Position |
| Measuring principle | Magnetic Hall |
| Sensing range | 35 mm |
| Ambient temperature | -40 ... 80°C |
| Typical sampling interval | 2 ms |
| Max. travel speed | ≥4 m/s |
| Displacement resolution | 0.012 mm |
| Repetition accuracy | 0.2 mm |
| Typical linearity error | ±2 mm |

Electronics, SDAC with IO-Link®

| | |
|-------------------------------------|-------------|
| Operational voltage range DC | 10 ... 30 V |
| Residual ripple | 10% |
| Reverse polarity protection | yes |
| Analogue output | – |
| Sensitivity | – |
| Min. load resistance voltage output | – |
| Short circuit current rating | yes |
| Overload protection | Available |
| Output signal | – |
| No-load supply current | <19 mA |
| Status indication | Red LED |

Datasheet

Electronics – Switching output, SDAC with IO-Link®



| | |
|--|--------------------------------|
| Switching output | 2x PNP or 2x NPN adjustable |
| Switching element function ¹⁾ | N/C or N/O contact, switchable |
| Switch-on time | ≤3 ms |
| Switch-off time | ≤3 ms |
| Max. switching frequency | 166 Hz |
| Max. switching output voltage DC | 30 V |
| Max. output current ²⁾ | 50 mA |
| Max. switching capacity DC | 1.5 W |
| Voltage drop | ≤0.4 V |

1) Switching element function can only be set via IO-Link®

2) Per switching output

Display, operation, SDAC with IO-Link®

| | |
|-----------------------------|---------------------------------|
| Switching status indication | Yellow LED |
| Status indication | Red LED |
| Setting options | IO-Link®, Capacitive pushbutton |

IO-Link®

| | |
|------------------------------------|--|
| Protocol | IO-Link® |
| IO-Link, revision ID | V1.1 |
| IO-Link, device profile | Function locator, Identification and diagnostics, Smart sensor - SSP 4.1.1, Measuring and switching sensor |
| IO-Link, transmission rate | COM2 |
| IO-Link, SIO-Mode support | Yes |
| IO-Link, port type | Class A |
| IO-Link, process data length input | 32 |
| IO-Link, minimum cycle time | 3 |
| IO-Link, Process data content IN | Position value 16-bit MDC, Monitoring 4-bit SSC |

Electromechanics general

| | | |
|--|---|--|
| 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, 4 | |
| Electrical connection 1, type of mounting | – | Screw-type lock with hexagon A/F 9 mm and longitudinal knurl |
| Electrical connection 1, tightening torque | – | 0.3 Nm |
| Connection outlet orientation | In-line | |
| Ambient temperature with moving cable | -20 ... 70°C | |
| Cable length | 2.5 m | 0.3 m |
| Cable characteristic | Suitable for energy chains/robot applications | |
| Test conditions cable | Bending strength: to Festo standard, Torsional resistance: > 300,000 cycles, ± 270°/0.1 m, Energy chain: > 5 million cycles, bending radius 28 mm | |
| Cable sheath colour | grey | |
| Material cable sheath | TPE-U(PUR) | |
| Material electrical contact | – | Brass, nickel-plated and gold-plated |

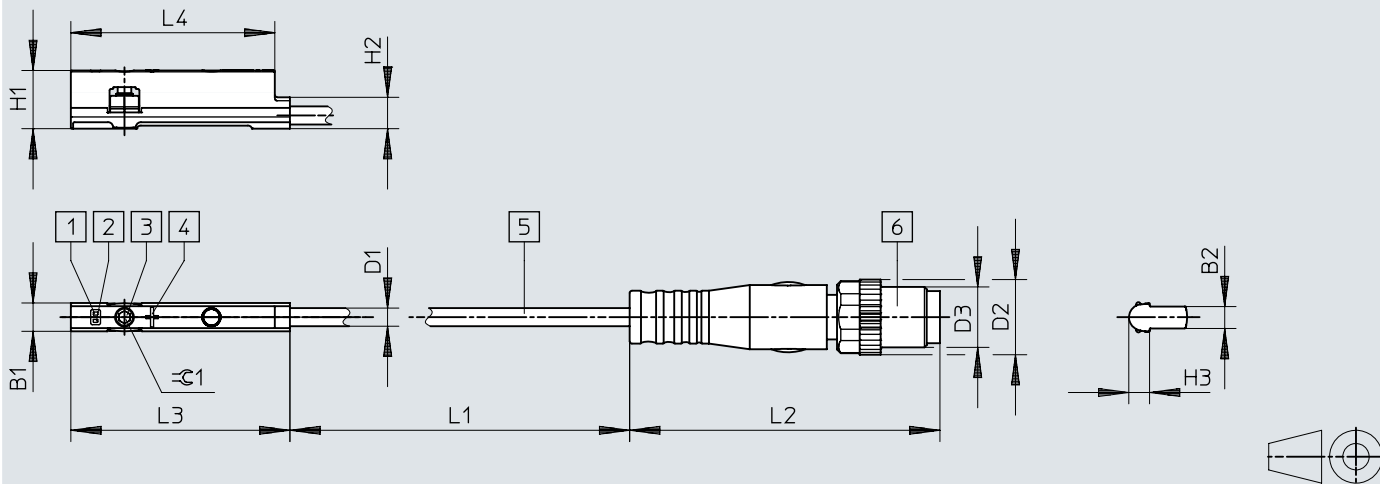
Datasheet

| Mechanics in general | | |
|--|---|---------------------|
| Electrical connection 1, connection type | Cable | Cable with plug |
| Product weight | 21 g | 9 g |
| Material housing | PA-reinforced, High-alloy stainless steel | |
| Material union nut | – | Nickel-plated brass |

Dimensions

Dimensions – SDAC-...-M8, with screw-type lock

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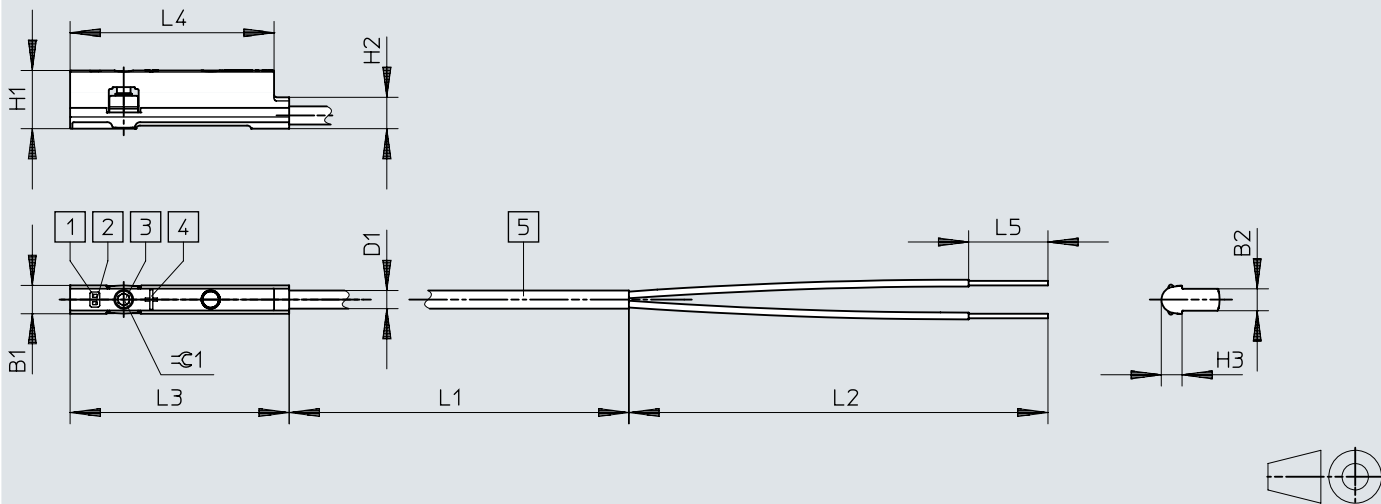
- [1] Colour/colour abbreviation red
- [2] Colour/colour code: SDAC-MHS-M30-1L-PNLK-PN-E-Yellow; SDAC-MHS-M20-1L-V-E-Green
- [3] Internal hex
- [4] Centre of the sensor element
- [5] Connecting cables
- [6] M8 plug

| | B1 | B2 | D1 ∅ | D2 ∅ | D3 | H1 | H2 | H3 | L1 | L2 | L3 | L4 | ⊕ ₁ |
|----------------------------------|-----|-----|---------|---------|------|-----|-----|-----|-----|------|----|----|----------------|
| SDAC-MHS-M30-1L-PNLK-PN-E-0,3-M8 | 3,8 | 2,9 | 2,4 | 10 | M8x1 | 7,7 | 4,1 | 2,8 | 300 | 41,1 | 29 | 27 | 1,5 |
| SDAC-MHS-M20-1L-V-E-0,3-M8 | | | 2,2 | | | | | | | | | | |

Dimensions

Dimensions – SDAC...-LE, with open end


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- [1] Colour/colour abbreviation red
- [2] Colour/colour code: SDAC-MHS-M30-1L-PNLK-PN-E-Yellow; SDAC-MHS-M20-1L-V-E-Green
- [3] Internal hex
- [4] Centre of the sensor element
- [5] Connecting cables

| | B1 | B2 | D1 ∅ | H1 | H2 | H3 | L1 | L2 | L3 | L4 | L5 | ⊕C1 |
|----------------------------------|-----|-----|---------|-----|-----|-----|------|----|----|----|----|-----|
| SDAC-MHS-M30-1L-PNLK-PN-E-2,5-LE | 3,8 | 2,9 | 2,4 | 7,7 | 4,1 | 2,8 | 2500 | 50 | 29 | 27 | 7 | 1,5 |
| SDAC-MHS-M30-1L-V-E-2,5-LE | | | 2,2 | | | | | | | | | |

Ordering data

| Position transmitter, 0 to 10V | | | | | | |
|--|--|---|--------------|-----------------|----------------|-----------------------------------|
| | Electrical connection 1, connection type | Electrical connection 1, connector system | Cable length | Analogue output | Part no. | Type |
|  | Cable | Open end | 2.5 m | 0 - 10 V | 8128403 | SDAC-MHS-M20-1L-V-E-2.5-LE |
| | Cable with plug | M8x1, A-coded, to EN 61076-2-104 | 0.3 m | | 8128402 | SDAC-MHS-M20-1L-V-E-0.3-M8 |

| Position transmitter, IO-Link® | | | | | | |
|--|--|---|--------------|----------|----------------|---|
| | Electrical connection 1, connection type | Electrical connection 1, connector system | Cable length | Protocol | Part no. | Type |
|  | Cable | Open end | 2.5 m | IO-Link® | 8128405 | SDAC-MHS-M30-1L-PNLK-PN-E-2.5-LE |
| | Cable with plug | M8x1, A-coded, to EN 61076-2-104 | 0.3 m | | 8128404 | SDAC-MHS-M30-1L-PNLK-PN-E-0.3-M8 |