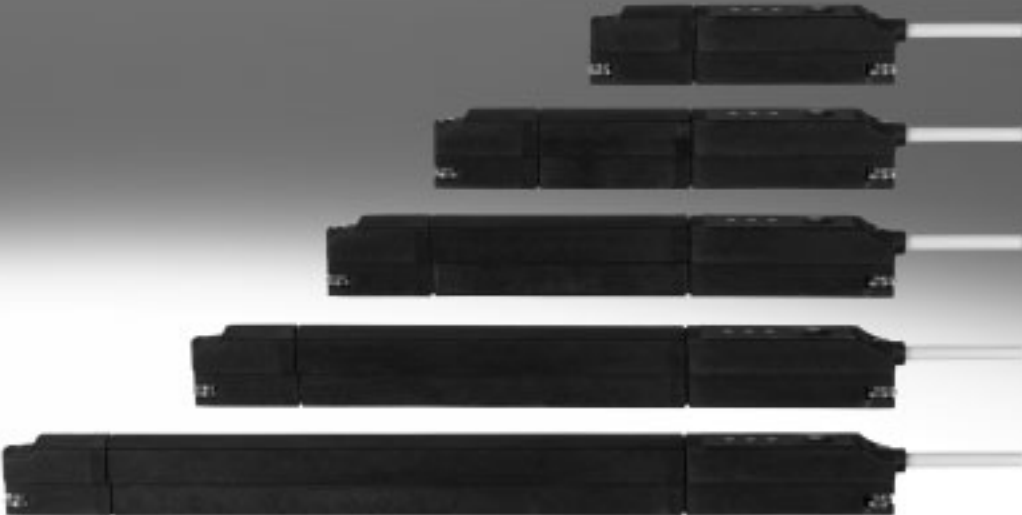


Position transmitters SDAT-MHS for T-slot



Position transmitters SDAT-MHS for T-slot

Key features



General

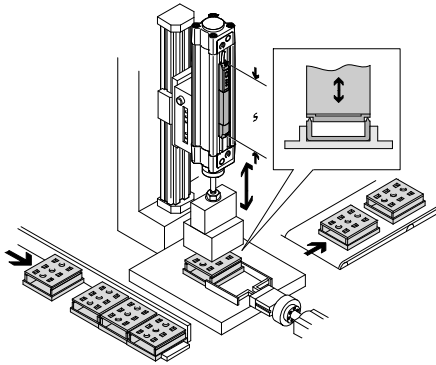
Position transmitters are used to provide feedback on piston movement in pneumatic drives. They are situated between simple cylinder

switches and expensive displacement encoders, both in terms of price and complexity. They are the ideal solution for applications in

which reliable analogue feedback on the piston stroke is required with high repetition accuracy, such

as in press-fitting, screwing, riveting, ultrasonic welding, good/bad selection and other applications.

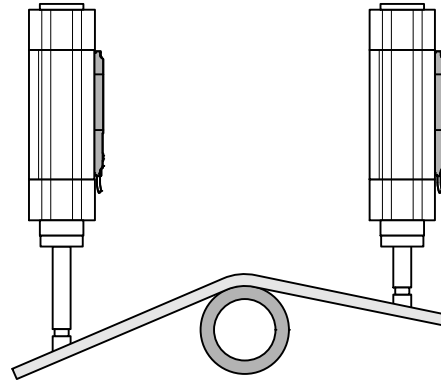
Ultrasonic welding



The SDAT-MHS is a position transmitter which continuously records the movement of the piston within the sensing range and makes it available as an output signal proportional to the displacement. The sensing ranges are 50, 80, 100, 125 and 160 mm, making them

perfectly harmonised to the stroke of the best-selling Festo cylinders. The SDAT has a 4-20mA analogue output, so it can be connected to analogue inputs without accessories. An IO-Link/switching output is available as a second interface. There is thus a choice between: switching

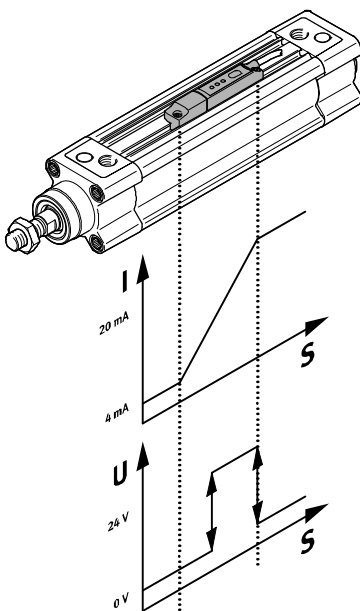
Bending



output 24 V or IO-Link operation. The switching output is directly programmed into the device using a teach button; the IO-Link function is programmed by means of a graphic user interface in the controller. The programming options in the two operating modes are: cylinder switch

function, window comparator, hysteresis comparator. The IO-Link/switching output is therefore the universal interface for simple programming of routine application functions without needing to evaluate the analogue output.

Switching output



Everything in a single device

- Analogue 4-20mA
- IO-Link
- Switching output

Programming options:

- Cylinder switch function
- Window comparator
- Hysteresis comparator
- NO/NC

Repetition accuracy 0.1 mm

Note

Sensors that detect magnetic fields, such as the position transmitter SDAT, must not be secured onto the drive using mountings made from ferritic materials, as this can lead to malfunction.



Position transmitters SDAT-MHS for T-slot

Key features

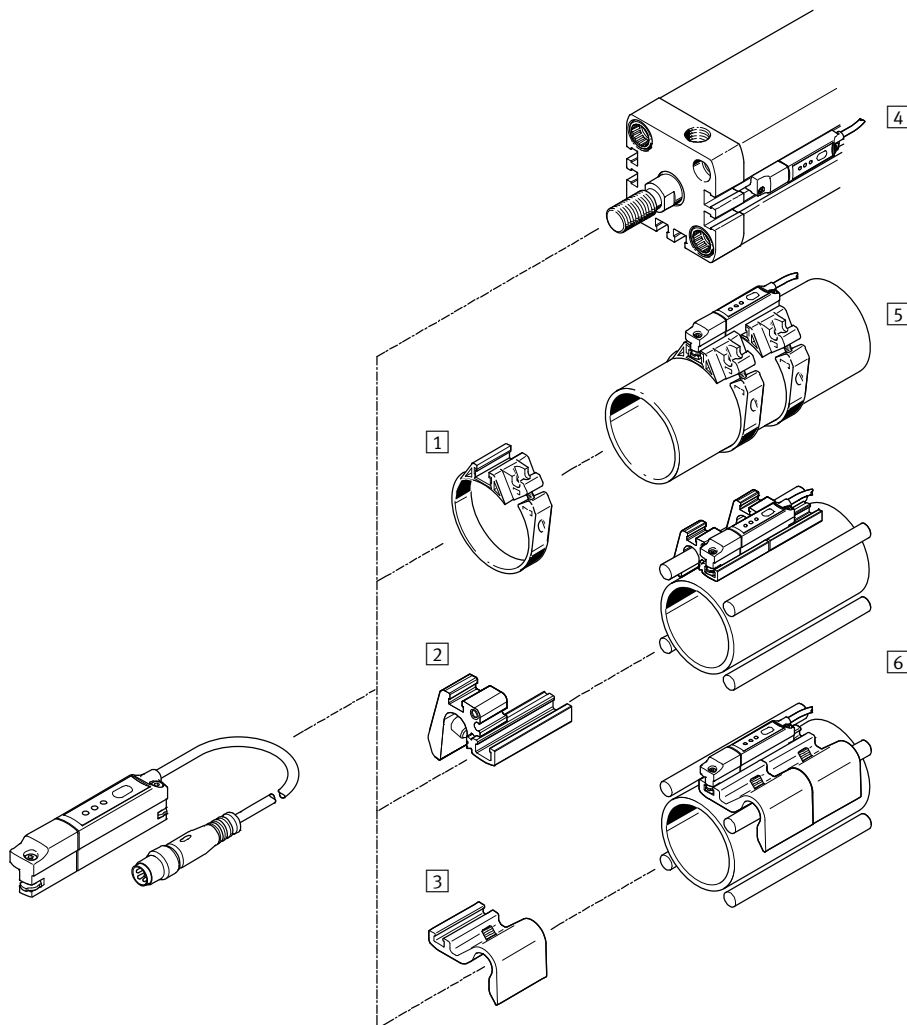
| For drive | Piston Ø |
|----------------------------------|--|
| Standard cylinders | |
| ADN | Ø 12, 16, 20, 25, 32, 40, 50, 63, 80 Ø 100, 125 |
| DSNU | Ø 8, 10, 12, 16, 20, 25, 32, 40, 50 Ø 63 |
| DNC | Ø 32, 40, 50, 63, 80, 100, 125 |
| DNCB | Ø 32, 40, 50, 63, 80, 100 |
| DNG | Ø 32, 40, 50, 63, 80, 100, 125 |
| DSBC | Ø 32, 40, 50, 63, 80, 100, 125 |
| DSBG | Ø 32, 40, 50, 63, 80, 100, 125, 160 Ø 200, 250, 320 |
| Cylinders with piston rod | |
| ADVC | Ø 40, 50, 63, 80, 100 |
| ADVU | Ø 12, 16, 20, 25, 32, 40, 50 Ø 63, 80, 100, 125 |
| DMM | Ø 10, 16, 20, 25, 32 |
| DZF | Ø 12, 18, 25, 32, 40, 50, 63 |
| DZH | Ø 16, 20, 25 |
| Function-oriented drives | |
| DFST | Ø 50, 63, 80 |
| STAF | Ø 50, 80 |

| For drive | Piston Ø |
|--|---|
| Rodless cylinders | |
| DGC-K | Ø 18, 25, 32, 40, 50, 63, 80 |
| DGC-KF | Ø 18, 25, 32, 40, 50, 63 |
| DGC-G | Ø 18, 25, 32, 40, 50, 63 |
| DGC-GF | Ø 18, 25, 32, 40, 50, 63 |
| Drives with linear guide | |
| DFM | Ø 12, 16, 20, 25, 32, 40, 50, 63, 80 Ø 100 |
| DFM-B | Ø 12, 16, 20, 25, 32, 40, 50, 63 |
| DGST | Ø 16, 20, 25 |
| DPZ | Ø 10, 16, 20, 25, 32 |
| SLE | Ø 32, 40, 50 |
| Swivel/linear drive units | |
| DSL | Ø 16, 20, 25, 32, 40 |
| Semi-rotary drives with rack and pinion | |
| DRQD | Ø 16, 20, 25, 32, 40, 50 |
| DRRD | Ø 16, 20, 25, 32, 40, 50, 63 |
| Mechanical grippers | |
| DHPS | Ø 35 |
| DHRS | Ø 32, 40 |
| DHWS | Ø 32, 40 |
| HGP | Ø 35 |
| HGR | Ø 32, 40 |
| HGW | Ø 32, 40 |
| HGPL | Ø 63 |
| HGPL-...-B | Ø 14, 25, 40, 63 |
| HGPT-...-G | Ø 63, 80 |
| HGRT | Ø 40, 50 |

Position transmitters SDAT-MHS for T-slot

Peripherals overview

FESTO



| Accessories | → Page/Internet |
|---------------------------------|-----------------|
| 1 Mounting kit SMBR | 9 |
| 2 Mounting SMBZ-8 | 9 |
| 3 Sensor retainer DASP-M4-... | 9 |
| 4 Standard cylinder DNCB | dncb |
| Standard cylinder DNC | dnc |
| Compact cylinder ADN | adn |
| Short-stroke cylinder ADVC/AEVC | advc |
| Compact cylinder ADVU/AEUV | advu |
| Flat cylinder DZF | dzf |
| Linear drive DGC | dgc |
| Linear/swivel clamp CLR | clr |
| Guided drive DFM | dfm |

| Accessories | → Page/Internet |
|---|-----------------|
| 5 Standard cylinder/round cylinder DSNU | dsnu |
| Linear unit SLE | sle |
| 6 Standard cylinder DSBG | dsbg |

Position transmitters SDAT-MHS for T-slot

Type code

SDAT - M HS - 1 L - SA - E - 0,3 - M8

Type

SDAT Position transmitter, magnetic

Sensor design

M Insertable in slot

Sensor principle

HS Hall sensor

Measuring range

| | |
|------|-----------|
| M50 | 0 ... 50 |
| M80 | 0 ... 80 |
| M100 | 0 ... 100 |
| M125 | 0 ... 125 |
| M160 | 0 ... 160 |

Nominal operating voltage

1 24 V DC

Display

L LED

Switching input/output

SA PNP or NPN, 1 analogue output 4 ... 20 mA, IO-Link

Cable properties

E Suitable for use with energy chains/robot applications

Cable length

0,3 0.3 m

Electrical connection

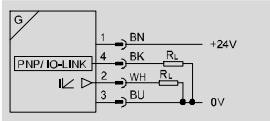
M8 M8 plug

Position transmitters SDAT-MHS for T-slot

Technical data

Function

Normal operation



| General technical data | | | | | |
|--|---|-----|------|------|------|
| Type | M50 | M80 | M100 | M125 | M160 |
| Design | For T-slot | | | | |
| Type of mounting | Insertable in the slot from above, secured with screw | | | | |
| Mounting position | Any | | | | |
| Approval certificate | RCM trademark c UL us - Listed (OL) | | | | |
| Degree of protection | IP65, IP68 | | | | |
| CE marking (see declaration of conformity) | To EU EMC Directive | | | | |
| KC marking | KC EMC | | | | |
| Note on materials | Halogen-free, RoHS-compliant | | | | |
| Weight [g] | 19 | 23 | 26 | 30 | 35 |

| Input signal/measuring element | | | | | |
|---|---------------|----------|-----------|-----------|-----------|
| Type | M50 | M80 | M100 | M125 | M160 |
| Measuring principle | Magnetic Hall | | | | |
| Measured variable | Position | | | | |
| Sensing range [mm] | 0 ... 50 | 0 ... 80 | 0 ... 100 | 0 ... 125 | 0 ... 160 |
| Ambient temperature [°C] | -25 ... 70 | | | | |
| Ambient temperature with flexible cable installation [°C] | -20 ... 70 | | | | |

| Signal processing | |
|--------------------------------|---|
| Typical sampling interval [ms] | 1 |
| Max. speed of travel [m/s] | 3 |

| Output, general | |
|------------------------------|------|
| Displacement resolution [mm] | 0.05 |

| Analogue output | | | | | |
|--|----------|-----|------|-------|------|
| | M50 | M80 | M100 | M125 | M160 |
| Analogue output [mA] | 4 ... 20 | | | | |
| Sensitivity [mA/mm] | 0.32 | 0.2 | 0.16 | 0.128 | 0.1 |
| Typ. linearity error [mm] | ±0.25 | | | | |
| Repetition accuracy of analogue value [mm] | 0.1 | | | | |
| Max. load resistance of current output [Ω] | 500 | | | | |

Position transmitters SDAT-MHS for T-slot

Technical data


| Output, additional data | |
|----------------------------------|-----|
| Protection against short circuit | Yes |
| Overload protection | Yes |

| Electronic components | | |
|-----------------------------|--------|--------------------------------|
| Operating voltage range | [V DC] | 15 ... 30 |
| Reverse polarity protection | | For all electrical connections |
| Switching output | | PNP |
| Switching element function | | N/C or N/O contact, switchable |
| Residual ripple | [%] | 10 |
| Switch-on time | [ms] | < 2 |
| Switch-off time | [ms] | < 2 |
| Max. switching frequency | [kHz] | 1 |
| Max. output current | [mA] | 100 |
| Max. switching capacity DC | [W] | 2.7 |
| Voltage drop | [V] | 2.5 |

| Electromechanical components | |
|------------------------------|--|
| Electrical connection | 4-pin |
| | M8x1, A-coded, to EN 61076-2-104 |
| | Screw locking |
| Connection direction | In-line |
| Cable properties | Suitable for use with energy chains/robot applications |
| Cable test conditions | Bending strength: according to Festo standard |
| | Energy chain: 5 million cycles, bending radius 28 mm |
| | Torsional strength: > 300,000 cycles, ±270°/0.1 m |

| Display/operation | |
|--------------------------|------------|
| Setting options | IO-Link |
| | Pushbutton |
| Ready status display | Green LED |
| Switching status display | Yellow LED |
| Status display | Red LED |

| Materials | |
|--------------------|----------------------------|
| Housing | High-alloy stainless steel |
| | Nickel-plated brass |
| | Reinforced PA |
| | Polyester |
| Union nut | Nickel-plated brass |
| Cable sheath, grey | TPE-U(PUR) |
| Foil | Polyester |
| Pin contacts | Gold-plated copper alloy |

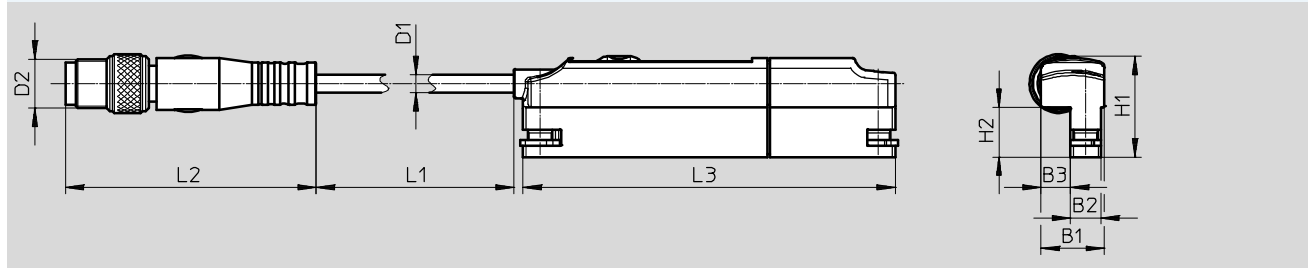
| Pin allocation | | |
|---|---|-----------------------------|
| Plug M8x1, 4-pin | | Wire colours |
|  | 1 | Operating voltage +24 V DC |
| | 2 | Analogue output 4 ... 20 mA |
| | 3 | 0 V |
| | 4 | IO-Link/switching output |
| | 1 | BN = brown |
| | 2 | WH = white |
| | 3 | BU = blue |
| | 4 | BK = black |

Position transmitters SDAT-MHS for T-slot

Technical data

| IO-Link | |
|-------------------------|--|
| Protocol | IO-Link I-Port |
| Protocol version | Device V 1.1 |
| Profile | Smart sensor profile |
| Function classes | Binary data channel (BDC) Diagnostics Identification Process data variable (PDV) Teach channel |
| Communication mode | COM3 (230.4 kBaud) |
| SIO mode support | Yes |
| Port class | A |
| Process data width IN | 2 bytes |
| Process data content IN | 12 bit PDV (position measured value) 4 bit BDC (position monitoring) |
| Minimum cycle time [ms] | 1 |

Dimensions Download CAD data → www.festo.com






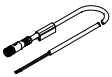

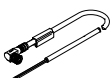
| Type | B1 | B2 | B3 | D1 ∅ | D2 | H1 | H2 | L1 | L2 | L3 |
|------------------------------|------|----|-----|---------|----|------|-----|-----|------|-----|
| SDAT-MHS-M50-1L-SA-E-0,3-M8 | 10.4 | 5 | 4.8 | 2.9 | M8 | 16.5 | 8.2 | 300 | 41.1 | 61 |
| SDAT-MHS-M80-1L-SA-E-0,3-M8 | | | | | | | | | | 91 |
| SDAT-MHS-M100-1L-SA-E-0,3-M8 | | | | | | | | | | 111 |
| SDAT-MHS-M125-1L-SA-E-0,3-M8 | | | | | | | | | | 136 |
| SDAT-MHS-M160-1L-SA-E-0,3-M8 | | | | | | | | | | 171 |

| Ordering data | | Electrical connection | Cable length [m] | Part No. | Type |
|---------------|---|-----------------------|------------------|------------------------------|------|
| | 4-pin, cable with plug, rotatable thread M8 | 0.3 | 1531265 | SDAT-MHS-M50-1L-SA-E-0,3-M8 | |
| | | | 1531266 | SDAT-MHS-M80-1L-SA-E-0,3-M8 | |
| | | | 1531267 | SDAT-MHS-M100-1L-SA-E-0,3-M8 | |
| | | | 1531268 | SDAT-MHS-M125-1L-SA-E-0,3-M8 | |
| | | | 1531269 | SDAT-MHS-M160-1L-SA-E-0,3-M8 | |

Position transmitters SDAT-MHS for T-slot

Accessories

| Ordering data – Mounting attachments | | Part No. | Type |
|---|----------------------|----------|----------------|
| For piston diameter | | | |
| Mounting kit SMBR | | | |
|  | 8 | 175091 | SMBR-8-8 |
| | 10 | 175092 | SMBR-8-10 |
| | 12 | 175093 | SMBR-8-12 |
| | 16 | 175094 | SMBR-8-16 |
| | 20 | 175095 | SMBR-8-20 |
| | 25 | 175096 | SMBR-8-25 |
| | 32 | 175097 | SMBR-8-32 |
| | 40 | 175098 | SMBR-8-40 |
| | 50 | 175099 | SMBR-8-50 |
| | 63 | 175100 | SMBR-8-63 |
| Mounting SMBZ | | | |
|  | 32 ... 100 | 537806 | SMBZ-8-32/100 |
| | 125 ... 320 | 537808 | SMBZ-8-125/320 |
| Sensor retainer DASP-M4-... | | | |
|  | For DSBG-125 | 1451483 | DASP-M4-125-A |
| | For DSBG-160 ... 200 | 1553813 | DASP-M4-160-A |
| | For DSBG-250 | 1456781 | DASP-M4-250-A |
| | For DSBG-320 | 3015256 | DASP-M4-320-A |

| Ordering data – Connecting cables NEBU-M8 | | | Technical data → Internet: nebu | | |
|---|------------------------------|------------------------------|---------------------------------|----------|----------------------|
| | Electrical connection, left | Electrical connection, right | Cable length [m] | Part No. | Type |
|  | Straight socket, M8x1, 4-pin | Cable, open end, 4-wire | 2.5 | 541342 | NEBU-M8G4-K-2.5-LE4 |
| | | | 5 | 541343 | NEBU-M8G4-K-5-LE4 |
|  | Straight socket, M8x1, 4-pin | Straight socket, M8x1, 4-pin | 2.5 | 554035 | NEBU-M8G4-K-2.5-M8G4 |
|  | Angled socket, M8x1, 4-pin | Cable, open end, 4-wire | 2.5 | 541344 | NEBU-M8W4-K-2.5-LE4 |
| | | | 5 | 541345 | NEBU-M8W4-K-5-LE4 |