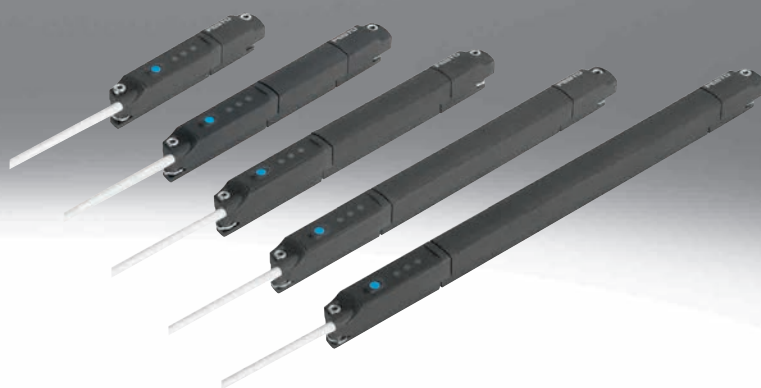


Position transmitters SDAT-MHS, for T-slot

FESTO



Key features

General

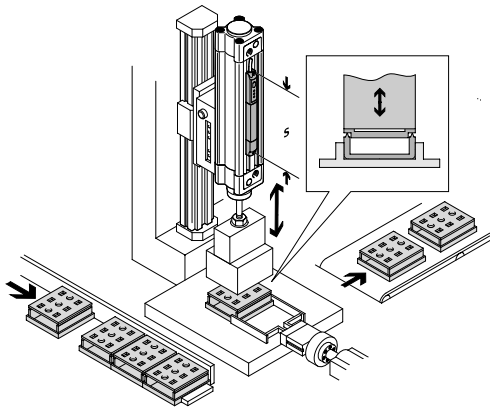
Position transmitters are used to provide feedback on piston movement in pneumatic drives. They are situated between simple proximity switches

and more expensive displacement encoders, both in terms of price and complexity. They are the ideal solution for applications in which reliable ana-

logue feedback on the piston stroke is required with high repetition accuracy, such as in press-fitting, screwing, rivet-

ing, 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.

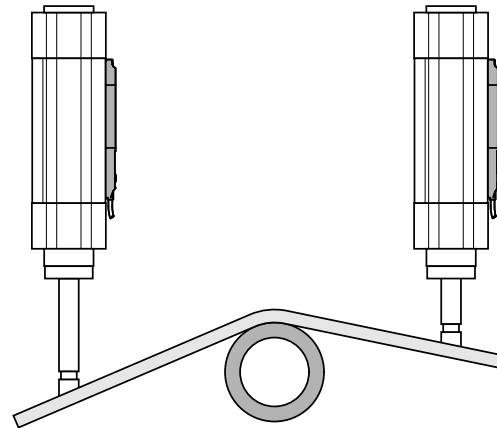
The sensing ranges are 50, 80, 100, 125 and 160 mm, making them perfectly harmonised to the stroke of the

best-selling Festo cylinders.

The SDAT has a 0 ... 10 V or 4 ... 20 mA 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 output 24 V or IO-Link operation. The

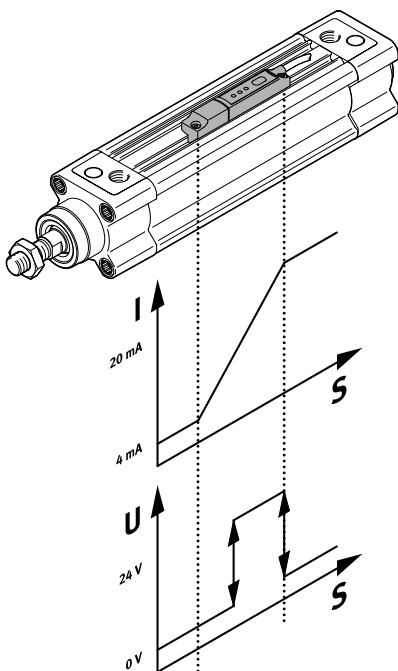
Bending



switching output is directly programmed into the device using a teach button; the IO-Link function is programmed via a graphic user interface in the controller. The programming options in the two operating modes are: proximity 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
SDAT-...SA-... 4 ... 20 mA
SDAT-...SV-... 0 ... 10 V
- IO-Link
- Switching output

Programming options:

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

Repetition accuracy: 0.1 mm

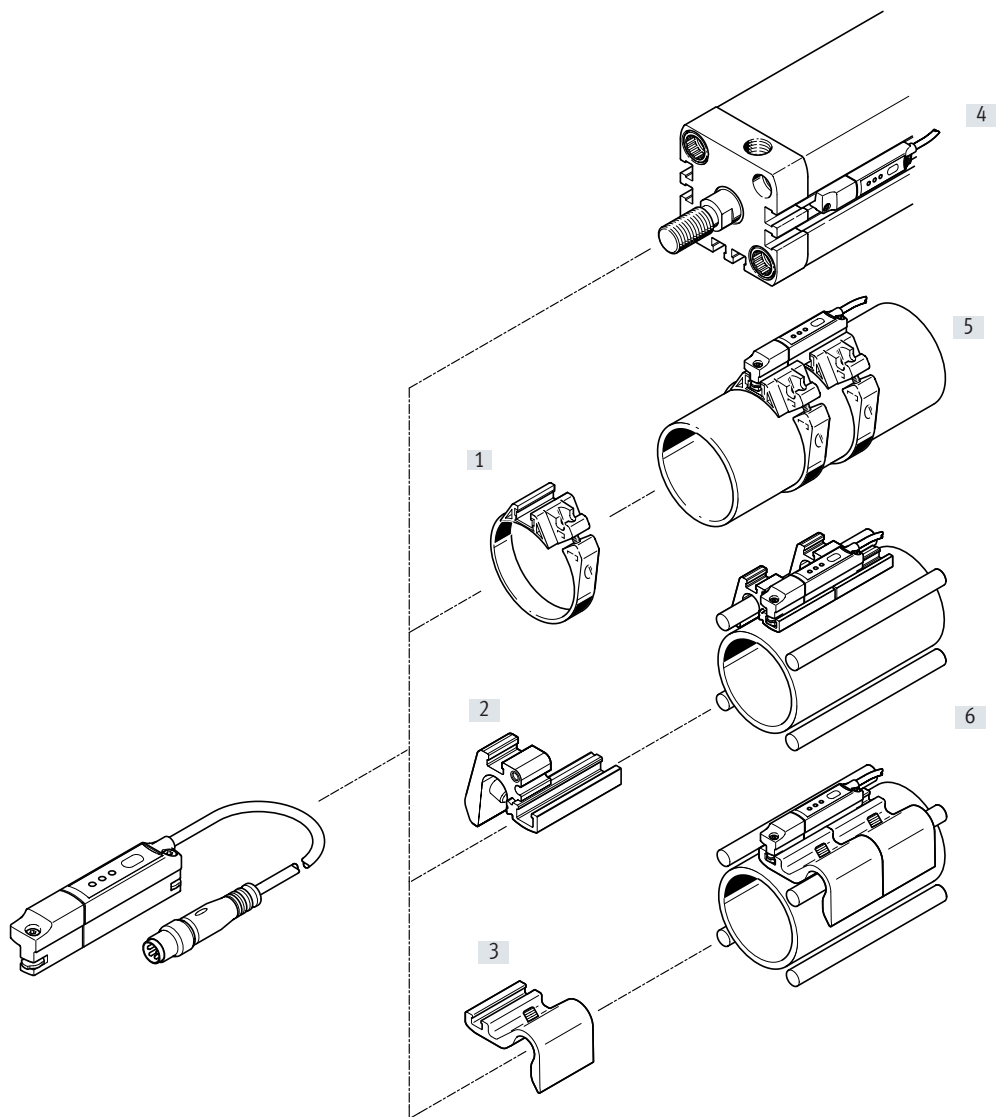


Note
Sensors that detect magnetic fields, such as the position transmitter SDAT, must not be secured onto the drive using mountings made from ferritic materials, as this can lead to malfunction.

Key features

For drive	Piston ø	For drive	Piston ø
Standards-based cylinders		Rodless cylinders	
ADN	ø 12, 16, 20, 25, 32, 40, 50, 63, 80 ø 100, 125	DGC-K	ø 18, 25, 32, 40, 50, 63, 80
DSNU	ø 8, 10, 12, 16, 20, 25, 32, 40, 50 ø 63	DGC-KF	ø 18, 25, 32, 40, 50, 63
DNC	ø 32, 40, 50, 63, 80, 100, 125	DGC-G	ø 18, 25, 32, 40, 50, 63
DNCB	ø 32, 40, 50, 63, 80, 100	DGC-GF	ø 18, 25, 32, 40, 50, 63
DNG	ø 32, 40, 50, 63, 80, 100, 125		
DSBC	ø 32, 40, 50, 63, 80, 100, 125	Drives with linear guide	
DSBG	ø 32, 40, 50, 63, 80, 100, 125, 160 ø 200, 250, 320	DFM	ø 12, 16, 20, 25, 32, 40, 50, 63, 80 ø 100
		DFM-B	ø 12, 16, 20, 25, 32, 40, 50, 63
Piston rod cylinders		DGST	ø 16, 20, 25
ADVC	ø 40, 50, 63, 80, 100	DPZ	ø 10, 16, 20, 25, 32
ADVU	ø 12, 16, 20, 25, 32, 40, 50 ø 63, 80, 100, 125	SLE	ø 32, 40, 50
DMM	ø 10, 16, 20, 25, 32		
DZF	ø 12, 18, 25, 32, 40, 50, 63	Swivel/linear drive units	
DZH	ø 16, 20, 25	DSL	ø 16, 20, 25, 32, 40
Function-oriented drives		Semi-rotary drives with gear rack and pinion	
DFST	ø 50, 63, 80	DRQD	ø 16, 20, 25, 32, 40, 50
STAF	ø 50, 80	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

Peripherals overview



Accessories		→ Page/Internet
[1]	Mounting kit SMBR	9
[2]	Mounting SMBZ-8	9
[3]	Sensor bracket DASP-M4-...	9
[4]	Standards-based 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
	Guided drive DFM	dfm

Accessories		→ Page/Internet
[5]	Standards-based/round cylinder DSNU	dsnu
	Linear drive unit SLE	sle
[6]	Standards-based cylinder DSBG	dsbg

Type codes

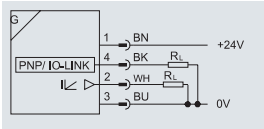
001	Series	
SDAT	Position transmitter, magnetic	
002	Sensor version	
M	Can be inserted in the slot	
003	Sensor principle	
HS	Hall sensor	
004	Measuring range	
M50	50 mm	
M80	80 mm	
M100	100 mm	
M125	125 mm	
M160	160 mm	
005	Nominal operating voltage	
1	24 V DC	

006	Display	
L	LED	
007	Switching input/output	
SA	PNP, 1 analogue output 4 ... 20 mA, IO-Link®	
SV	PNP, 1 analogue output 0 ... 10 V, IO-Link®	
008	Cable characteristic	
E	Suitable for energy chains/robot applications	
009	Cable length [m]	
0.3	0.3 m	
010	Electrical connection	
M8	Plug M8, A-coded	

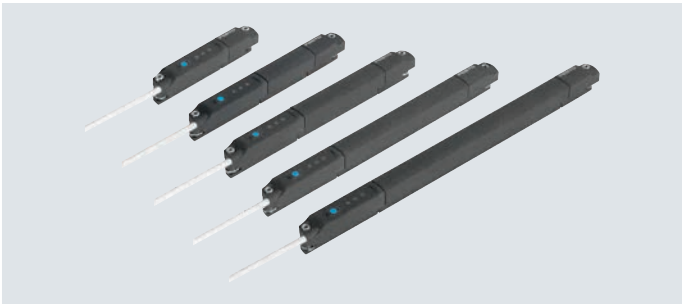
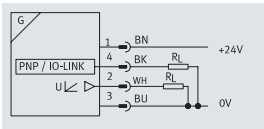
Data sheet

Function
Normal operation

SDAT-...SA-...



SDAT-...SV-...



General technical data					
Type	M50	M80	M100	M125	M160
Design	For T-slot				
Type of mounting	Inserted in the slot from above, screw-clamped				
Mounting position	Any				
Certification	RCM c UL us listed (OL)				
Degree of protection	IP65, IP68				
CE marking (see declaration of conformity)	To EU EMC Directive				
KC mark	KC EMC				
Note on materials	Halogen-free, RoHS-compliant				
PWIS conformity	VDMA24364-B2-L				
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		
Path resolution [mm]	0.05	

Data sheet

Analogue output		M50	M80	M100	M125	M160
Analogue output						
SDAT-...-SA-...	[mA]	4 ... 20				
SDAT-...-SV-...	[V]	0 ... 10				
Sensitivity						
SDAT-...-SA-...	[mA/mm]	0.32	0.2	0.16	0.128	0.1
SDAT-...-SV-...	[V/mm]	0.18	0.113	0.09	0.072	0.056
Max. load resistance SDAT-...-SA-...						
Current output	[Ω]	500				
Min. load resistance SDAT-...-SV-...						
Voltage output	[kΩ]	20				
Typical linearity error	[mm]	±0.25				
Repetition accuracy of analogue value	[mm]	0.1				
Output, additional data						
Short circuit current rating		Yes				
Overload protection		Provided				
Electronics						
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, 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				
Electromechanics						
Electrical connection		4-pin				
		M8x1, A-coded to EN 61076-2-104				
		Screw-type lock				
Outlet direction of connection		In-line				
Cable characteristic		Suitable for energy chains/robot applications				
Cable test conditions		Bending strength: to Festo standard				
		Cable chain: 5 million cycles, bending radius 28 mm				
		Torsional resistance: > 300,000 cycles, ±270°/0.1 m				
Display/operation						
Setting options		IO-Link				
		Pushbutton				
Ready status indication		Green LED				
Switching status indication		Yellow LED				
Status indication		Red LED				

Data sheet

Materials

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

Terminal allocation

Plug M8x1, 4-pin

Wire colours



- | | |
|---|--|
| 1 | Operating voltage
+24 V DC |
| 2 | Analogue output
SDAT-...-SA-... 4 ... 20 mA
SDAT-...-SV-... 0 ... 10 V |
| 3 | 0 V |
| 4 | IO-Link/switching output |

- | | |
|---|------------|
| 1 | BN = brown |
| 2 | WH = white |
| 3 | BU = blue |
| 4 | BK = black |

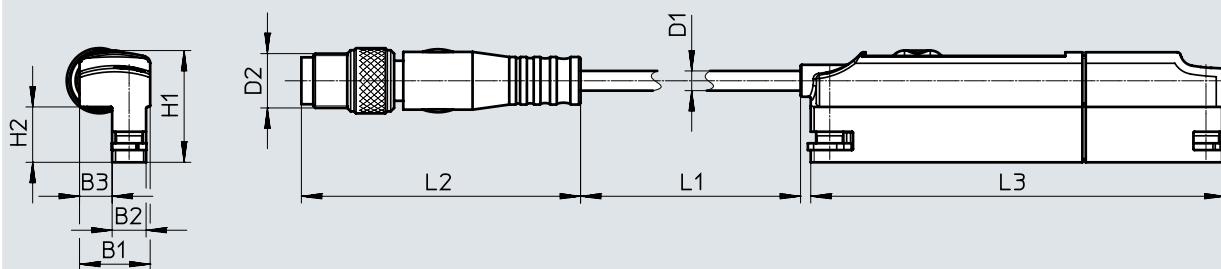
IO-Link

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 kBd)
SIO mode support	Yes
Port class	A
Process data width IN	2 bytes
Process data content IN	12 bit PDV (measured position value)
	4 bit BDC (position monitoring)
Minimum cycle time [ms]	1

Dimensions

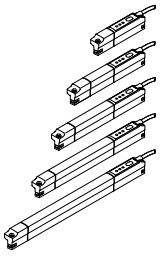
Download CAD data → www.festo.com

SDAT-MHS-M... -1L-SA-E-0.3-M8

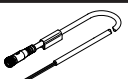
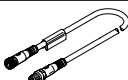


Type	B1	B2	B3	D1 Ø	D2	H1	H2	L1	L2	L3
SDAT-MHS-M50-1L-SA-E-0.3-M8	10.4	5	4.8	2.9	M8	16.5	8.2	300	41.1	61
SDAT-MHS-M80-1L-SA-E-0.3-M8										91
SDAT-MHS-M100-1L-SA-E-0.3-M8										111
SDAT-MHS-M125-1L-SA-E-0.3-M8										136
SDAT-MHS-M160-1L-SA-E-0.3-M8										171

Accessories

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
				8115394	SDAT-MHS-M50-1L-SV-E-0.3-M8
				8115395	SDAT-MHS-M80-1L-SV-E-0.3-M8
				8115396	SDAT-MHS-M100-1L-SV-E-0.3-M8
				8115397	SDAT-MHS-M125-1L-SV-E-0.3-M8
				8115398	SDAT-MHS-M160-1L-SV-E-0.3-M8

Ordering data – Mounting components		Part no.	Type
	For piston ø		
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 bracket 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					Data sheets → 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

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