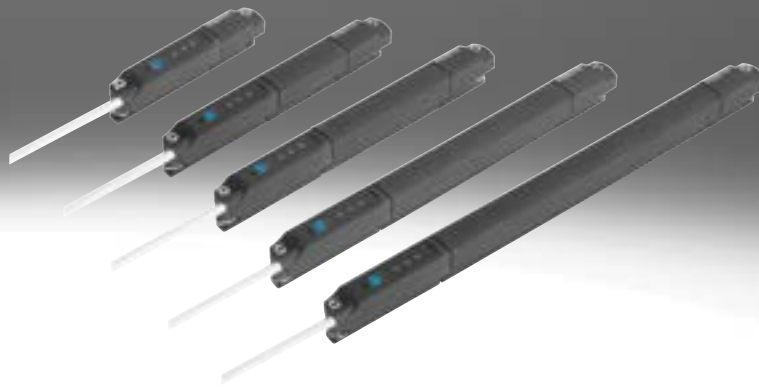


Position transmitters SDAT-MHS, for T-slot

FESTO



Key features

General

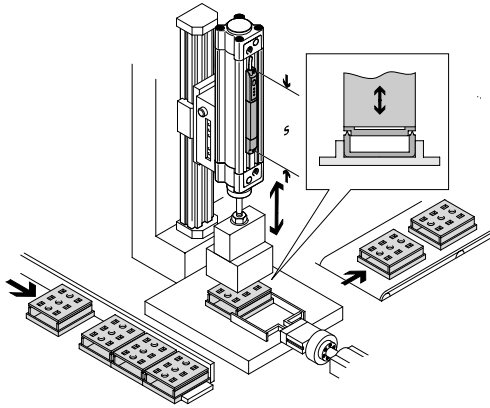
Position transmitters are used to provide feedback on piston movement in pneumatic drives. They are situated between simple proximity switches

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.

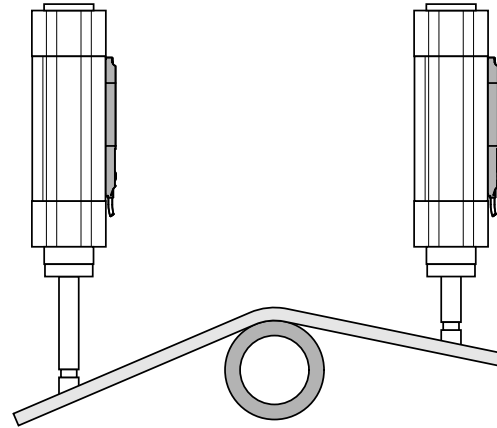
The sensing ranges are 50, 80, 100, 125 and 160 mm, making them perfectly harmonised to the stroke of the

best-selling Festo cylinders.

The SDAT has a 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 switching output is directly programmed into

Bending

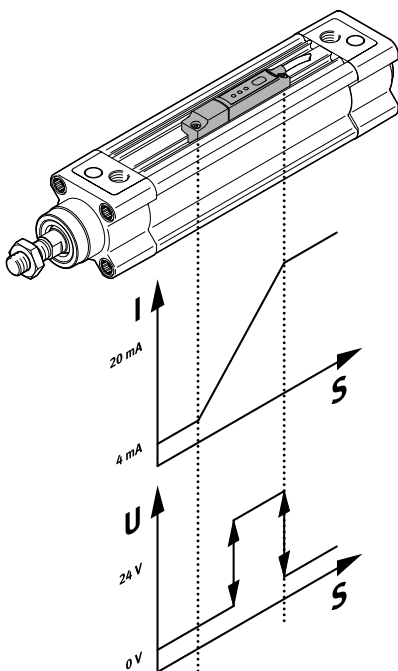


the device using a teach button; the IO-Link function is programmed via a graphic user interface in the controller. The programming options in the two operating modes are: proximity switch function, window comparator, hysteresis comparator.

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 4 ... 20 mA
- 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.

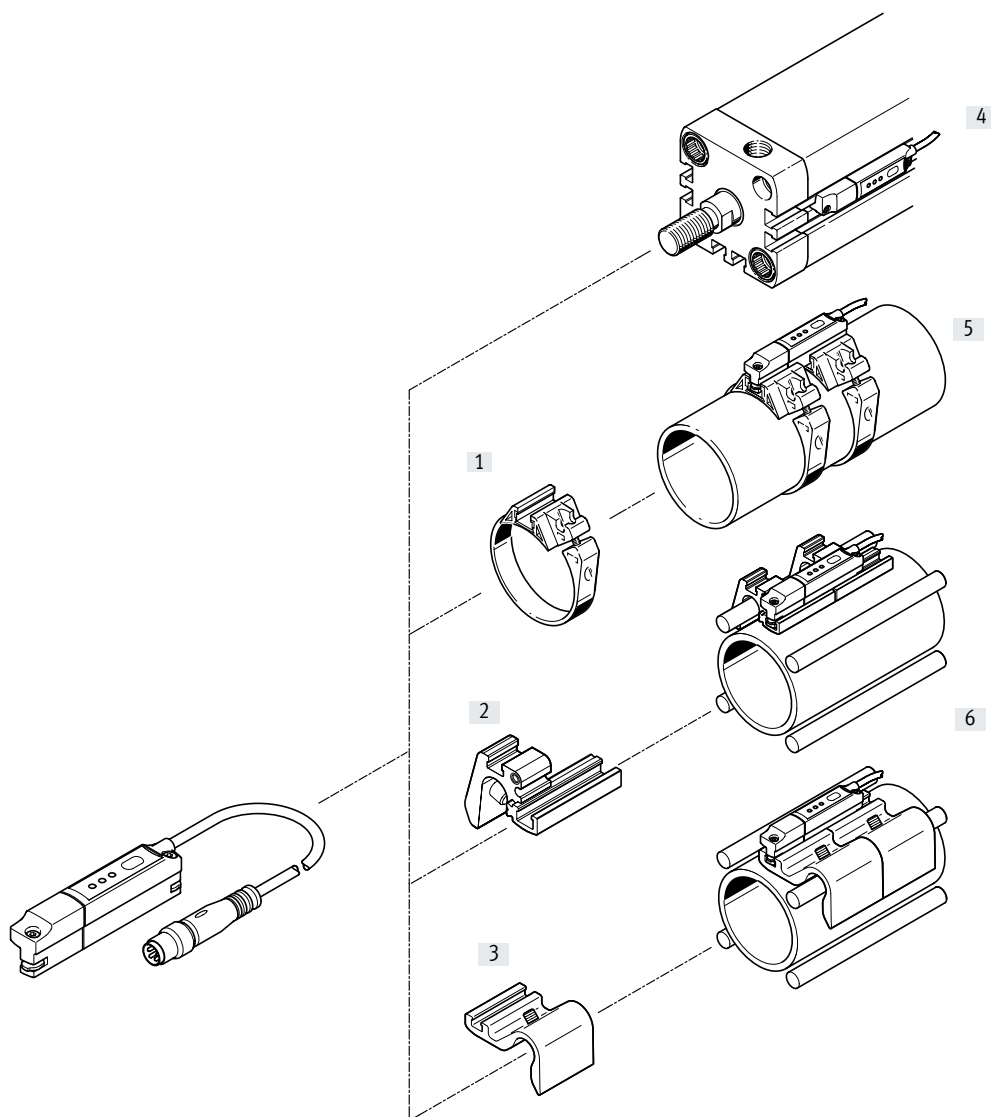


Key features

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

For drive	Piston \varnothing
Rodless cylinders	
DGC-K	\varnothing 18, 25, 32, 40, 50, 63, 80
DGC-KF	\varnothing 18, 25, 32, 40, 50, 63
DGC-G	\varnothing 18, 25, 32, 40, 50, 63
DGC-GF	\varnothing 18, 25, 32, 40, 50, 63
Drives with linear guide	
DFM	\varnothing 12, 16, 20, 25, 32, 40, 50, 63, 80 \varnothing 100
DFM-B	\varnothing 12, 16, 20, 25, 32, 40, 50, 63
DGST	\varnothing 16, 20, 25
DPZ	\varnothing 10, 16, 20, 25, 32
SLE	\varnothing 32, 40, 50
Swivel/linear drive units	
DSL	\varnothing 16, 20, 25, 32, 40
Semi-rotary drives with gear rack and pinion	
DRQD	\varnothing 16, 20, 25, 32, 40, 50
DRRD	\varnothing 16, 20, 25, 32, 40, 50, 63
Mechanical grippers	
DHPS	\varnothing 35
DHRS	\varnothing 32, 40
DHWS	\varnothing 32, 40
HGP	\varnothing 35
HGR	\varnothing 32, 40
HGW	\varnothing 32, 40
HGPL	\varnothing 63
HGPL-...- B	\varnothing 14, 25, 40, 63
HGPT-...- G	\varnothing 63, 80
HGRT	\varnothing 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 or NPN, 1 analogue output 4 ... 20 mA, IO-Link®	

008	Cable characteristic	
E	Suitable for energy chains/robot applications	

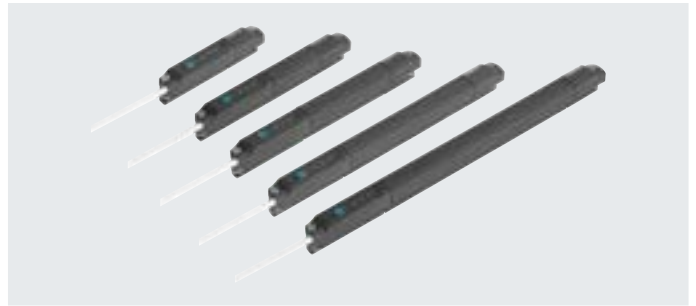
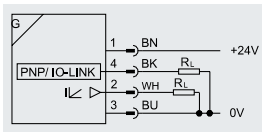
009	Cable length [m]	
0.3	0.3	

010	Electrical connection	
M8	Plug M8	

Data sheet

Function

Normal operation



General technical data		M50	M80	M100	M125	M160
Type						
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				
Weight	[g]	19	23	26	30	35

Input signal/measuring element		M50	M80	M100	M125	M160
Type						
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		M50	M80	M100	M125	M160
Typical sampling interval	[ms]	1				
Max. speed of travel	[m/s]	3				

Output, general		M50	M80	M100	M125	M160
Path 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
Typical linearity error	[mm]	±0.25				
Repetition accuracy of analogue value	[mm]	0.1				
Max. load resistance of current output	[Ω]	500				

Data sheet

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, $\pm 270^\circ/0.1$ m

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

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 4 ... 20 mA |
| 3 | 0 V |
| 4 | IO-Link/switching output |

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

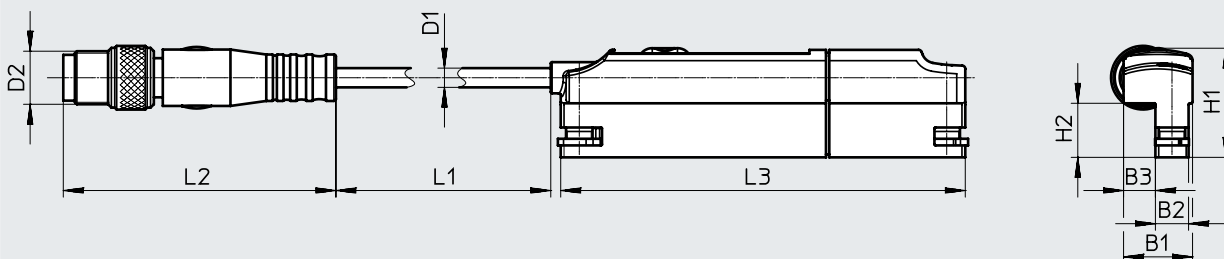
Data sheet

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

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

Download CAD data → www.festo.com




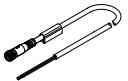

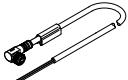


Type	B1	B2	B3	D1 ∅	D2	H1	H2	L1	L2	L3
SDAT-MHS-M50-1L-SA-E-0.3-M8	10.4	5	4.8	2.9	M8	16.5	8.2	300	41.1	61
SDAT-MHS-M80-1L-SA-E-0.3-M8										91
SDAT-MHS-M100-1L-SA-E-0.3-M8										111
SDAT-MHS-M125-1L-SA-E-0.3-M8										136
SDAT-MHS-M160-1L-SA-E-0.3-M8										171

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

Accessories

Ordering data – Mounting components				Part no.	Type
	For piston \varnothing				
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