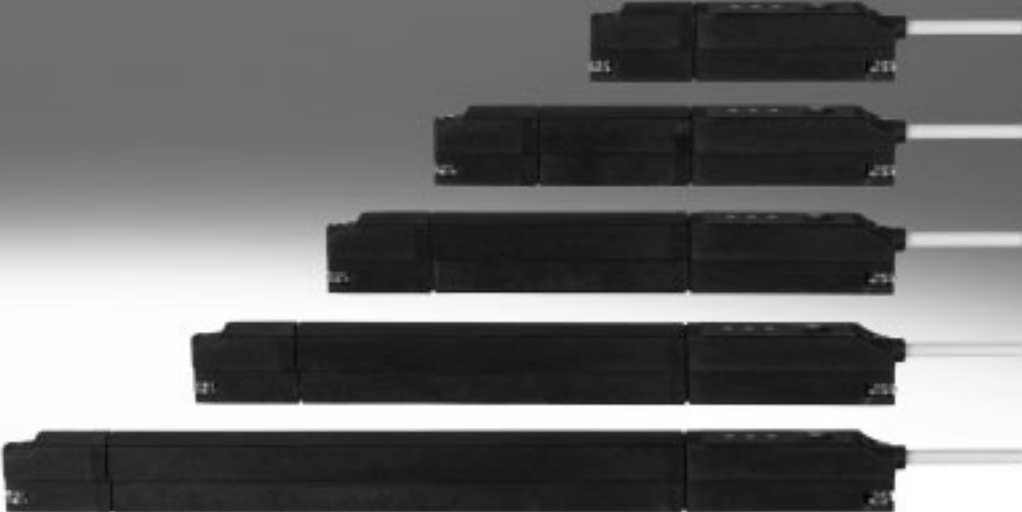


# Position transmitters SDAT-MHS for T-slot



# Position transmitters SDAT-MHS for T-slot

Key features



## General

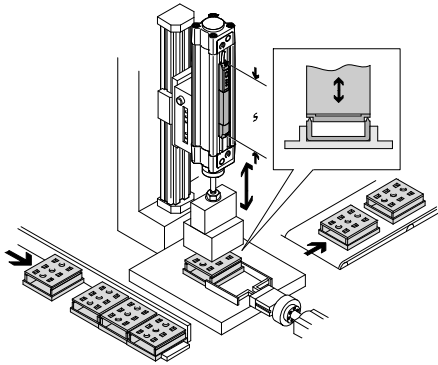
Position transmitters are used to provide feedback on piston movement in pneumatic drives. They are situated between simple cylinder

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.

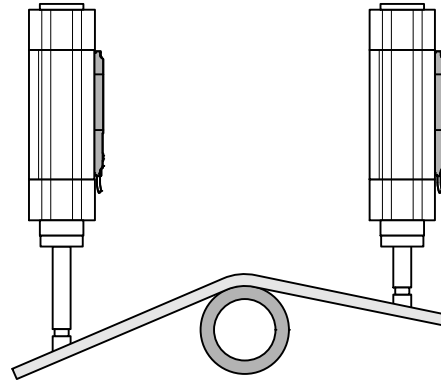
## Ultrasonic welding



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

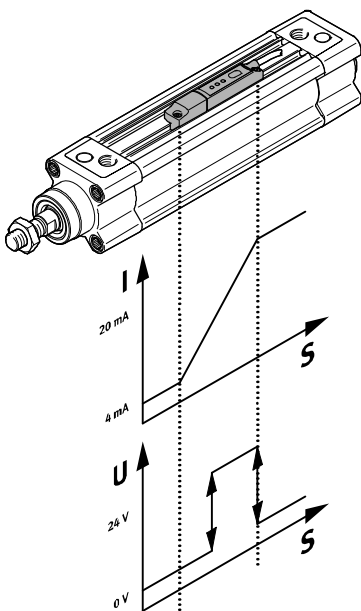
## Bending



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

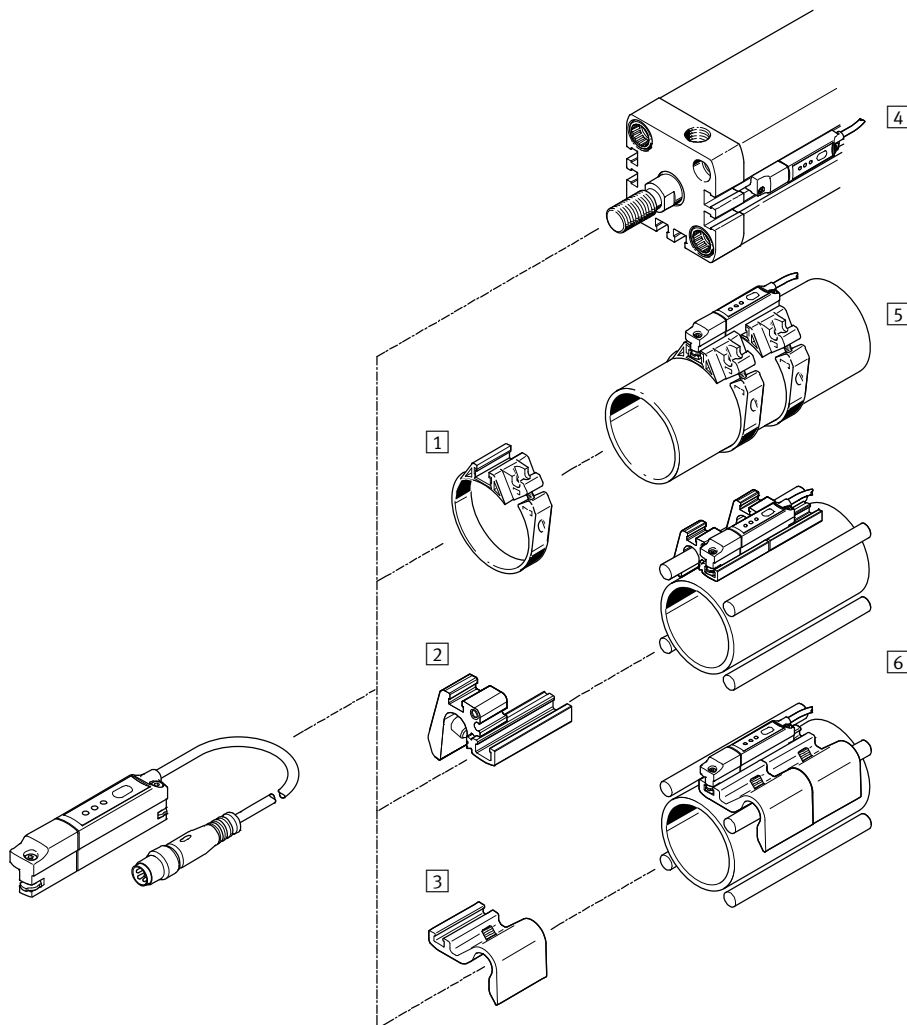
For drive	Piston Ø
<b>Standard cylinders</b>	
ADN	Ø 12, 16, 20, 25, 32, 40, 50, 63, 80 Ø 100, 125
DSNU	Ø 8, 10, 12, 16, 20, 25, 32, 40, 50 Ø 63
DNC	Ø 32, 40, 50, 63, 80, 100, 125
DNCB	Ø 32, 40, 50, 63, 80, 100
DNG	Ø 32, 40, 50, 63, 80, 100, 125
DSBC	Ø 32, 40, 50, 63, 80, 100, 125
DSBG	Ø 32, 40, 50, 63, 80, 100, 125, 160 Ø 200, 250, 320
<b>Cylinders with piston rod</b>	
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
<b>Function-oriented drives</b>	
DFST	Ø 50, 63, 80
STAF	Ø 50, 80

For drive	Piston Ø
<b>Rodless cylinders</b>	
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
<b>Drives with linear guide</b>	
DFM	Ø 12, 16, 20, 25, 32, 40, 50, 63, 80 Ø 100
DFM-B	Ø 12, 16, 20, 25, 32, 40, 50, 63
DPZ	Ø 10, 16, 20, 25, 32
SLE	Ø 32, 40, 50
<b>Swivel/linear drive units</b>	
DSL	Ø 16, 20, 25, 32, 40
<b>Semi-rotary drives with rack and pinion</b>	
DRQD	Ø 16, 20, 25, 32, 40, 50
DRRD	Ø 16, 20, 25, 32, 40, 50, 63
<b>Mechanical grippers</b>	
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
HGRT	Ø 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/AEJU	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
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**Sensor design**

M	Insertable in slot
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**Sensor principle**

HS	Hall sensor
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**Measuring range**

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

**Nominal operating voltage**

1	24 V DC
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**Display**

L	LED
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**Switching input/output**

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

E	Suitable for use with energy chains/robot applications
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**Cable length**

0,3	0.3 m
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**Electrical connection**

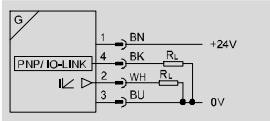
M8	M8 plug
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# Position transmitters SDAT-MHS for T-slot

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)				
Special characteristics	Oil resistant				
Degree of protection	IP65, IP68				
CE marking (see declaration of conformity)	To EU EMC Directive				
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, cable with plug, rotatable thread M8
Connection direction	In-line
Cable properties	Energy chain + robot
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

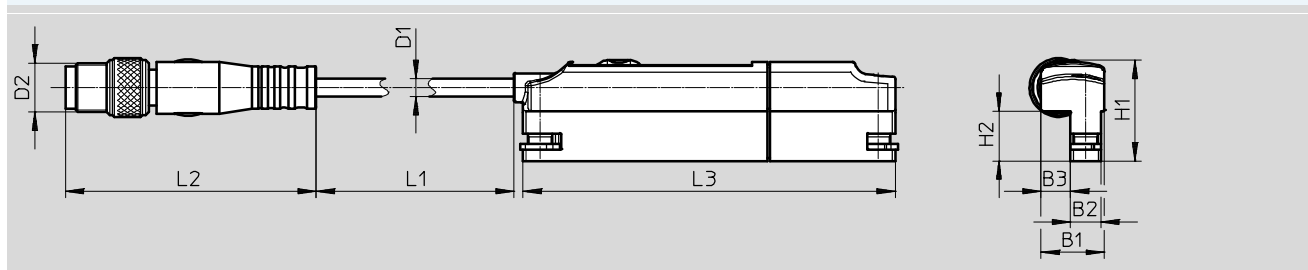
# Position transmitters SDAT-MHS for T-slot

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)
Port type	A
Process data width IN	Parameterisable 8 or 16 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](http://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			
	For piston diameter	Part No.	Type
<b>Mounting kit SMBR</b>			
	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
<b>Mounting SMBZ</b>			
	32 ... 100	537806	SMBZ-8-32/100
	125 ... 320	537808	SMBZ-8-125/320
<b>Sensor retainer DASP-M4-...</b>			
	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