

## Position transmitters, proximity sensors SDAS-MHS for T-slot

**FESTO**



## Characteristics

### General

The SDAS-MHS is used for contactless feedback of the piston position of drives with magnetic proximity sensing. It combines two functions into a single 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, 4 channels can be programmed via IO-Link as proximity sensor, window comparator or hysteresis comparator.

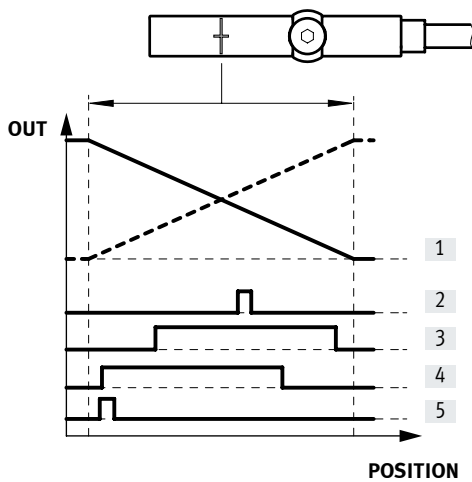
2. As a programmable proximity sensor, the SDAS-MHS provides binary feedback of the piston position which is made available as a standard 24 V output signal. Additionally, two proximity sensor switching points can be taught in within the sensing range via a capacitive operating button directly on the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

Thanks to its extremely compact design, the SDAS-MHS is the ideal solution for grippers, compact cylinders and all applications with limited installation space.

### Note

It can be used with Festo drives with T-slot (profile slot 8) as well as round cylinders and tie-rod cylinders with mounting kits.

### Position transmitter



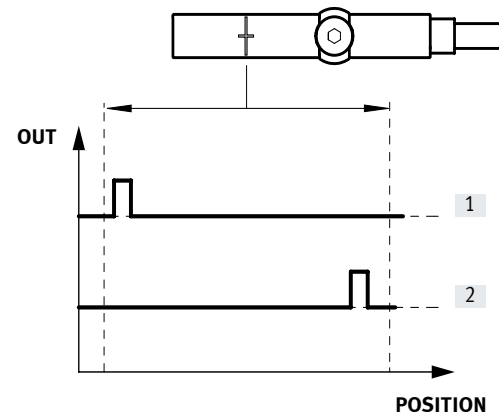
---- Output signal (PDV): direction of increase inverted  
 — Output signal (PDV): direction of increase as per delivery status

- [1] PDV (position data values)
- [2] SSC1 (switching signal channel)
- [3] SSC2
- [4] SSC3
- [5] SSC4

#### Applications:

Good/bad part sorting, press-fitting, riveting, ultrasonic welding etc.

### Proximity sensor

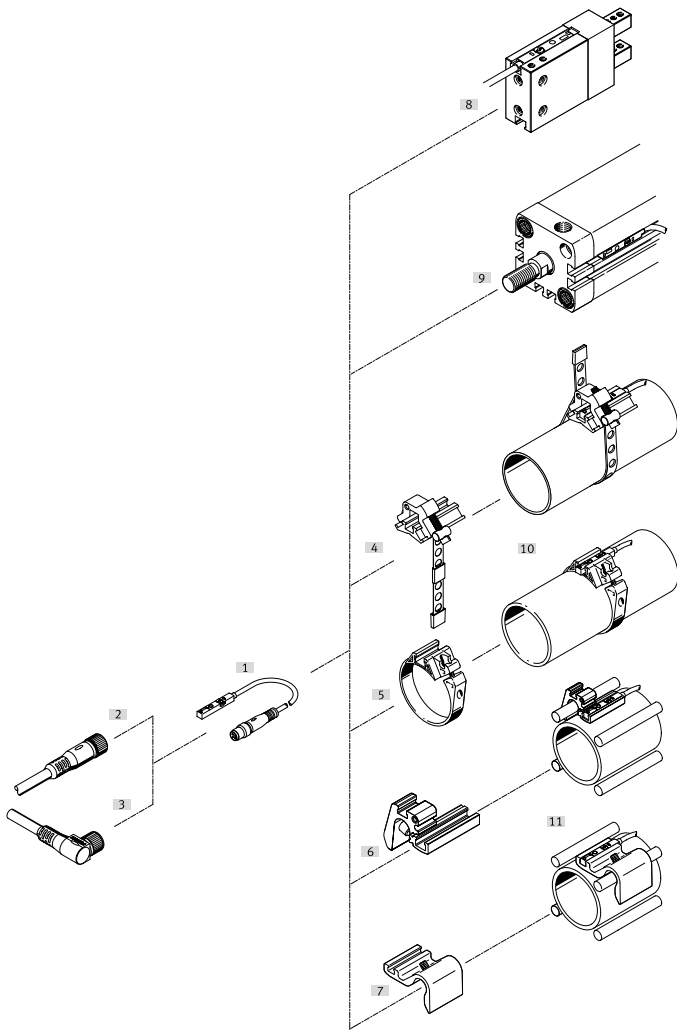


- [1] Electrical output 1
- [2] Electrical output 2

#### Applications:

Two proximity sensors in one device to save space on compact drives and to save time during assembly and commissioning.

Peripherals overview



Accessories	→ Page/Internet
[1] Proximity sensor SDAS-MHS	5
[2] Connecting cable NEBU-M8G4	9
[3] Connecting cable NEBU-M8W4	9
[4] Mounting kit SMBR-8-8/100-S6, heat-resistant	9
[5] Mounting kit SMBR	9
[6] Mounting SMBZ-8	9
[7] Sensor bracket DASP-M4-...	9
[8] Three-point gripper HGDD	hgdd
Parallel gripper DHPS	dhps
Parallel gripper HGPD	hgpd
Parallel gripper HGPT	hgpt
Angle gripper DHWS	dhws
Radial gripper DHRS	dhrs
Radial gripper HGRT	hgrt

Accessories	→ Page/Internet
[9] Standards-based cylinder DSBC	dsbc
Standards-based cylinder DNC	dnc
Compact cylinder ADN	adn
Short-stroke cylinder ADVC/AEVC	advc
Compact cylinder ADVU/AEVU	advu
Flat cylinder DZF	dzf
Linear drive DGC	dgc
Linear/swivel clamp CLR	clr
Guided drive DFM	dfm
[10] Standards-based cylinder/round cylinder DSNU	dsnu
Linear drive unit SLE	sle
[11] Standards-based cylinder DSBG	dsbg

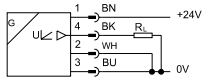
## Type codes

001	Series	
<b>SDAS</b>	Position transmitter/cylinder switch	
002	Sensor version	
<b>M</b>	Can be inserted in the slot	
003	Sensor principle	
<b>HS</b>	Hall sensor	
004	Measuring range	
<b>M40</b>	Typically up to 40 mm	
005	Nominal operating voltage	
<b>1</b>	24 V DC	
006	Display	
<b>L</b>	LED	

007	Electrical output 1	
<b>PNLK</b>	PNP or NPN or IO-Link®	
008	Electrical output 2	
<b>PN</b>	PNP or NPN	
009	Cable characteristic	
<b>E</b>	Suitable for energy chains/robot applications	
010	Cable length [m]	
<b>0.3</b>	0.3	
<b>2.5</b>	2.5	
011	Electrical connection	
<b>LE</b>	Open end	
<b>M8</b>	Plug M8	

## Data sheet

## Function



Operating mode:  
Position transmitter

Operating mode:  
Proximity sensor



General technical data	
Design	For T-slot
Mounting position	Any
Type of mounting	Screwed tightly
Application information	Support / Overview of actuator sensors "The right sensor for the actuator"
Certification	RCM compliance mark
CE marking (see declaration of conformity)	To EU EMC Directive To EU RoHS Directive
UKCA marking (see declaration of conformity)	To UK instructions for EMC To UK RoHS instructions
Degree of protection	IP65, IP68
Note on materials	RoHS-compliant Halogen-free
PWIS conformity	VDMA24364-B2-L

- 1) For information about the area of use, see the EC declaration of conformity at: [www.festo.com/sp](http://www.festo.com/sp) → Certificates.  
If the devices are subject to usage restrictions in residential, commercial or light-industrial environments, further measures for the reduction of the emitted interference may be necessary.

Sensors	
Measured variable	Position
Measuring principle	Magnetic Hall
Sensing range [mm]	≤ 52
Ambient temperature [°C]	-40 ... +80
Typical sampling interval [ms]	2
Max. travel speed [m/s]	3
Path resolution [mm]	≤ 0.02
Repetition accuracy [mm]	0.2
Typical linearity error [mm]	±1

Electronics – General	
Operating voltage range [V DC]	10 ... 30
Residual ripple [%]	10
Reverse polarity protection	For all electrical connections

## Data sheet

Electronics – Switching output (operating mode: proximity sensor)		
Switching output		2x PNP or 2x NPN adjustable
Switching element function <sup>1)</sup>		N/C or N/O contact, switchable
Switch-on time	[ms]	< 4
Switch-off time	[ms]	< 4
Max. switching frequency	[Hz]	125
Max. output current <sup>2)</sup>	[mA]	50
Idle current	[mA]	< 12
Short circuit current rating		Yes
Overload protection		Present
Max. switching output voltage DC	[V]	30
Max. switching capacity DC	[W]	1.5
Voltage drop	[V]	< 0.5

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

2) Per switching output

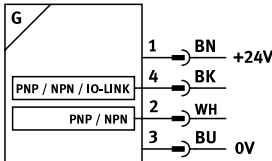
IO-Link (operating mode: position transmitter)	
Protocol	IO-Link I-Port
Protocol version	Device V 1.1
Profile	Smart sensor profile
Function classes	Process data variable (PDV) Identification Diagnostics Teach channel Switching signal channel (SSC)
Communication mode	COM2 (38.4 kBaud)
SIO-mode support	Yes
Port class	A
Process data width IN	2 bytes
Process data content IN	12-bit PDV (position measurement) 4-bit SSC (switching signal)
Minimum cycle time	[ms] 2.5

Display/operation	
Switching status indication	LED yellow
Status indication	LED red
Setting options	IO-Link Capacitive pushbutton

## Data sheet

Electromechanical components		SDAS-MHS- ... -0,3-M8	SDAS-MHS- ... -2,5-LE
<b>Electrical connection 1</b>			
Connection type		Cable with plug	Cable
Connection technology		M8x1, A-coded to EN 61076-2-104	Open end
Number of pins/wires		4	
Type of mounting		Screw-type lock	–
Connection outlet direction		In-line	
Ambient temperature with flexible cable installation	[°C]	–20 ... +70	
Cable length	[m]	0.3	2.5
Cable characteristic		Suitable for use with energy chains/robot applications	
Cable test conditions		Bending strength: to Festo standard	
		Energy chain: 5 million cycles, bending radius 28 mm	
		Torsional resistance: > 300,000 cycles, ± 270°/0.1 m	
Cable sheath colour		Grey	
Cable sheath material		TPE-U(PUR)	
Information on materials: Pin contacts		Gold-plated copper alloy	–

## Terminal allocation

Terminal allocation	Operating mode: proximity sensor	Operating mode: position transmitter
		1 Operating voltage 2 Switching output 2 3 0V 4 Switching output 1

## Wire colours

BN = Brown  
BK = Black

WH = White  
BU = Blue

## Plug

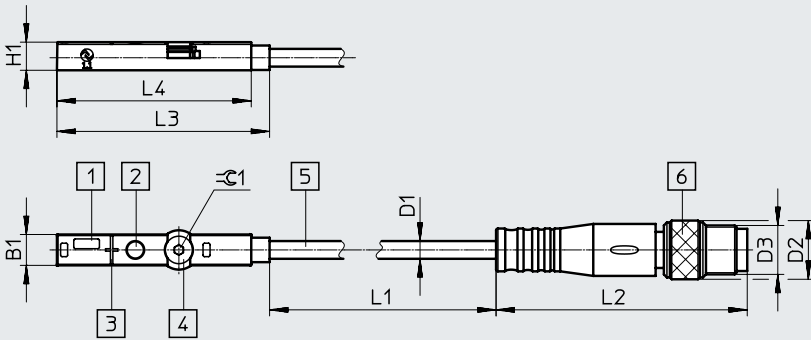


Mechanical system		SDAS-MHS- ... -0,3-M8	SDAS-MHS- ... -2,5-LE
Type of mounting		Insertable in the slot from above	
Product weight	[g]	9.5	27
Housing material		High-alloy stainless steel	
		Reinforced PA	
Information on materials: Union nut		Nickel-plated brass	–

Data sheet

Dimensions of cable with plug

Download CAD data → [www.festo.com](http://www.festo.com)

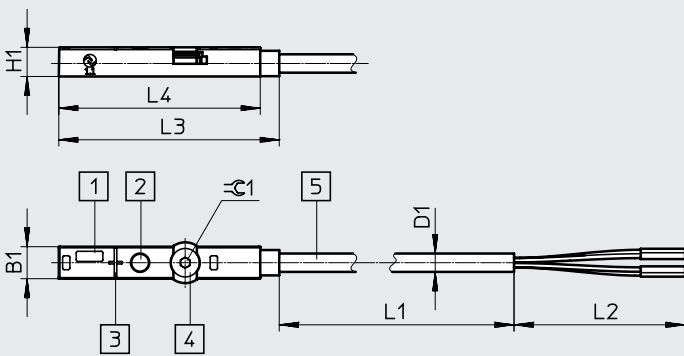


- [1] Light emitting diode
- [2] Operating button
- [3] Centre of the sensor
- [4] Slot for screwdriver
- [5] Connecting cable
- [6] Plug M8, 4-pin

Type	B1	D1 ∅	D2 ∅	D3	H1	L1	L2	L3	L4	⊕ 1
SDAS-MHS-...-M8	5	2.9	9.6	M8	4.6	300	41.1	34.8	31.8	1.5

Cable dimensions

Download CAD data → [www.festo.com](http://www.festo.com)



- [1] Light emitting diode
- [2] Operating button
- [3] Centre of the sensor
- [4] Slot for screwdriver
- [5] Connecting cable





Type	B1	D1 ∅	H1	L1	L2	L3	L4	⊕ 1
SDAS-MHS-...-LE	5	2.9	4.6	2500	50	34.8	31.8	1.5

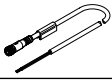

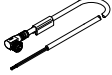
Ordering data

	Electrical connection	Cable length [m]	Part no.	Type
	Cable with plug, M8x1, A-coded to EN 61076-2-104	0.3	<b>8063974</b>	<b>SDAS-MHS-M40-1L-PNLK-PN-E-0.3-M8</b>
	Cable, open end	2.5	<b>8063975</b>	<b>SDAS-MHS-M40-1L-PNLK-PN-E-2.5-LE</b>



## Accessories

Ordering data – Mounting components		Part no.	Type
For piston diameter			
<b>Mounting kit SMBR-8-8/100-S6, heat-resistant</b>			
	8 ... 100	538937	SMBR-8-8/100-S6
<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>			
	For DSBG 32 ... 100	537806	SMBZ-8-3 2/100
<b>Sensor bracket DASP-M4-...</b>			
	For DSBG-125	1451483	DASP-M4-125-A

Ordering data – Connecting cable NEBU-M8		Cable length [m]	Part no.	Type	Data sheets → Internet: nebu
	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