

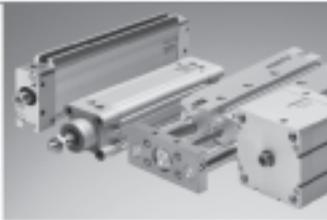


- Position measuring range
48 ... 52 mm
- Analogue output 0 ... 10 V and
0 ... 20 mA
- Integrated out-of-range sensor
- Typical repetition
accuracy 0.1 mm
- Direct mounting in T-slot

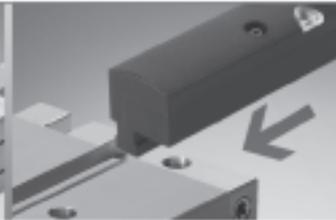


Leading the way – the new SMAT

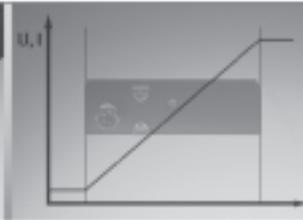
It continuously detects the position of the cylinder piston within a range of 50 mm. Its analogue output delivers an output signal in proportion to the piston position.



Wide range of use

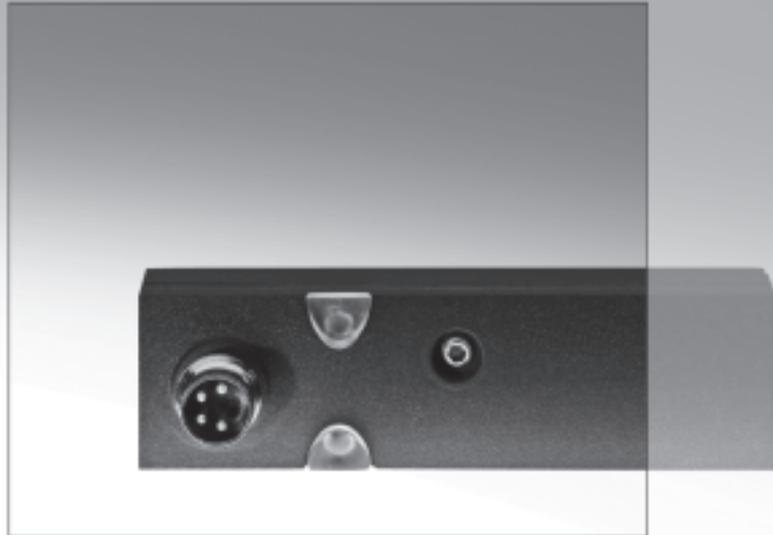


Easy installation



Position is known to 100%

- Sturdy: thanks to the contactless measuring principle with wear-free sensing
- Quicker to install: simply push into the slot and secure with Allen key
- Reliable: the measuring range is 48 ... 52 mm, independent of cylinder; reproducibility is 0.1 mm
- Flexible: the installation direction of the SMAT in the slot is freely selectable
- Multi-purpose: fits on virtually all Festo cylinders with T-slot
- Secure: operating- and out-of-range display via 2 LEDs on the device
- Standardised: 0 ... 10 V, 0 ... 20 mA analogue output
- Compact: direct mounting in T-slot does not require any additional accessories



Advantages for designers

- Minimal design costs, no need for accessories
- Suitable for use in confined spaces thanks to the compact design
- Freely selectable drive unit means greater flexibility
- The measuring system opens up a whole host of different applications

Advantages for end users

- Excellent reliability and precision thanks to the wear-free measuring system
- Minimum warehousing: only 1 type for a wide range of applications and drive units
- Less expensive than comparable potentiometer solutions

Position transmitters SMAT-8E, for T-slot

Key features



Design

The SMAT-8E is a sturdy magnetic measuring system in the 50 mm range. It provides a standardised analogue current and voltage signal via an M8x1 plug connection, regard-

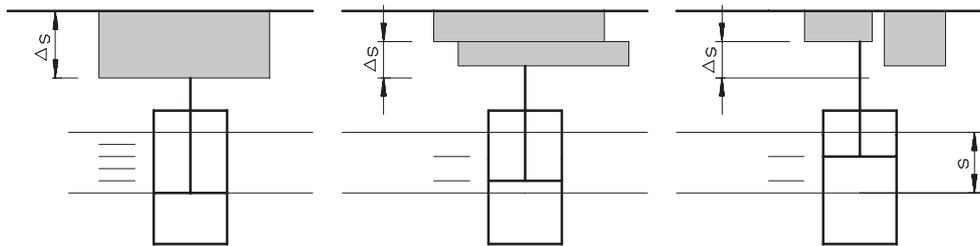
less of the drive unit used. The transmitter can thus be connected directly to the analogue input of a programmable logic controller. The piston position of the pneumatic cylinder

can be recorded by means of contactless sensing and the travel distance can be measured between any set switching points with typical reproducibility of 0.1 mm.

Typical applications

Object detection
Press-fitting, clamping, position sensing, quality sorting of parts, workpiece replacement.

Process monitoring
Quality inspection, wear monitoring, thickness measuring.



s Position measuring range

- - Note

Sensors that detect magnetic fields, such as proximity sensors SMT/SME/SMPO, position sensors SMH and position transmitters SMAT, must not be secured onto the drive using mountings made from ferritic materials, as this can lead to malfunction.

Position transmitters SMAT-8E, for T-slot

Selection aid

FESTO

Drive	Piston Ø	Suitability	Drive	Piston Ø	Suitability
Standards-based cylinders			Drives with linear guide		
Standard cylinders DSNU, ESNU		0	Mini slides SLS, SLF, SLT		-
Standard cylinders DSN, ESN		0	Twin cylinders SPZ	Ø 10, 25	0
Standard cylinders DNCB		++		Ø 16	++
Standard cylinders DNC		++		Ø 32	-
Standard cylinders DNG		-	Slide units SLZ		-
Standard cylinders CDN-...-R with sensor strip		-	Guided cylinders DFP	Ø 10 ... 16	-
Standard cylinders DNU		-		Ø 25 ... 80	0
Standard cylinders ADN		++	Mini guided drives DFC		-
Cylinders with piston rod			Guided drives DFM	Ø 12, 25, 50	++
Compact cylinders ADVU, AEVU		++		Ø 16, 20, 32, 40, 63, 80	+
Short-stroke cylinders ADVC, AEVC	Ø 6 ... 25	-		Ø 100	-
	Ø 32 ... 100	++	Guided drives DFM-B	Ø 12, 16, 25, 32	-
Flat cylinders EZH-10/40-40-A-B		+		Ø 20, 63	+
Flat cylinders DZF	Ø 12, 25, 32, 40, 63	+		Ø 40, 50	++
	Ø 18, 50	++	Linear drive units SLE		-
Flat cylinders DZH	Ø 16 ... 25	+	Twin cylinders DPZC		-
	Ø 32 ... 63	-	Twin cylinders DPZ		++
Round cylinders DSNU, ESNU		0	Handling units		
Round cylinders DSW, ESW		0	Linear modules HMP		-
Round cylinders DSEU, ESEU		0	Linear modules HMPL		-
Multimount cylinders DMM, EMM		+	Handling modules HSP		-
Round cylinders CRDG		0	Feed separators HPV		-
Round cylinders CRDSW		0	Three-point grippers HGD		-
Standard cylinders CRHD		0	Parallel grippers HGP		-
Standard cylinders CRDSNU		0	Parallel grippers HGPP		-
Standard cylinders CRDNG		-	Parallel grippers HGPT		-
Standard cylinders CRDNCS		-	Angle grippers HGW		-
			Radial grippers HGR		-
Rodless cylinders			Cushioning components		
Linear drives DGC		-	Stop elements YSRWJ		-
Linear drives DGP, DGPL		-	Electrical positioning systems		
Linear drives SLG		-	Toothed belt axes DGE-ZR		-
Linear drives DGO		-	Spindle axes DGE-SP		-
Linear drives SLM	Ø 12, 40	++	System components		
	Ø 16 ... 32	0	Heavy-duty guides HD		-
Semi-rotary drives			Process valve actuators		
Swivel modules DSM	Ø 6 ... 10	-	Copac linear actuators DLP-A		-
Semi-rotary drives DRQ		-	Function-oriented drives		
Semi-rotary drives DRQD	Ø 6, 8, 12, 40, 50	-	Stopper cylinders STA, STAF		-
	Ø 16 ... 32	++	Linear/swivel clamps CLR		0
Function-oriented drives			Swivel/linear units DSL		-

++ Unlimited use
 + Sensor function guaranteed without restriction; installation direction and clamping are drive-specific
 0 Upon request
 - Unsuitable

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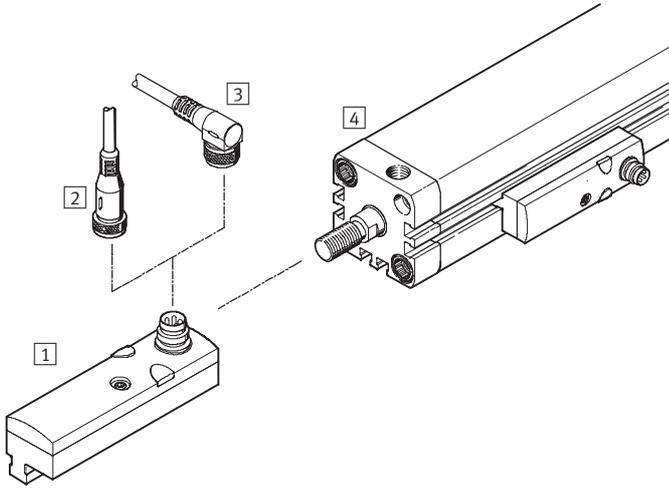
Drive accessories
 Cylinder sensors

10.2

Position transmitters SMAT-8E, for T-slot

Peripherals overview and type codes

Peripherals overview



	Brief description	→ Page
Proximity sensors		
1	SMAT-8E Magnetic, with plug M8x1	1 / 10.2-123
Accessories		
2	Connecting cable NEBU-M8G4 Straight socket, M8x1, 4-pin	1 / 10.2-125
3	Connecting cable NEBU-M8W4 Angled socket, M8x1, 4-pin	
Drives		
4	Drives with T-slot Drives combinable with SMAT-8E → Table 1 / 10.2-121	-

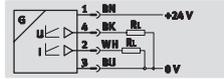
Type codes

		SMAT	8E	S50	IU	M8
Type	SMAT	Position transmitter, magnetic				
Design	8E	For T-slot, insertable from end				
Position measuring range	S50	50 mm				
Analogue output	IU	0 ... 10 V, 0 ... 20 mA				
Electrical connection	M8	Plug M8x1				

Position transmitters SMAT-8E, for T-slot

Technical data

Function
Position transmitter



- Position measuring range
48 ... 52 mm
- Analogue output 0 ... 10 V and
0 ... 20 mA
- Integrated out-of-range sensor
- Magnetic measuring principle
- Insertable in the T-slot from the end



Design	
Constructional design	For T-slot
Type of mounting	Clamped, insertable in the slot lengthwise
Connection direction	In-line
Ready status display	Green LED
Status display	Red LED = outside measuring range

Technical data		
Analogue output	[V]	0 ... 10
	[mA]	0 ... 20
Sensitivity	[V/mm]	0.152
	[mA/mm]	0.305
Typical scanning interval	[ms]	2.85
Displacement resolution	[mm]	0.064
Electrical connection		Plug M8x1, 4-pin
Operating voltage range	[V DC]	15 ... 30
Min. load resistance of voltage output	[Ω]	2,000
Max. load resistance of current output	[Ω]	500
Idle current	[mA]	32
Protection against short circuit		Yes
Protection against overloading		Yes
Protection against polarity reversal		For all electrical connections
Measuring principle		Magnetic
Position measuring range	[mm]	48 ... 52
Reproducibility, analogue value	[mm]	±0.064
Max. speed of travel	[m/s]	3
Protection class		IP65/IP67
Product weight	[g]	15

Materials	
Housing	Reinforced polyamide Polycarbonate
Note on materials	Free of copper and PTFE

Operating and environmental conditions		
Ambient temperature	[°C]	-20 ... +50 ¹⁾
Corrosion resistance class CRC ²⁾		2
CE symbol (declaration of conformity)		In accordance with EU EMC directive
Certification		c UL us - Listed (OL)
		C-Tick

1) Extended ambient temperature range on request

2) Corrosion resistance class 2 according to Festo standard 940 070

Components requiring moderate corrosion resistance. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.

Position transmitters SMAT-8E, for T-slot

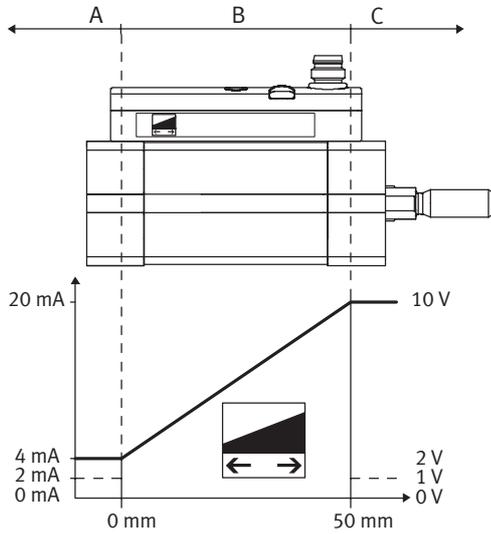
Technical data



Drive accessories
Cylinder sensors

10.2

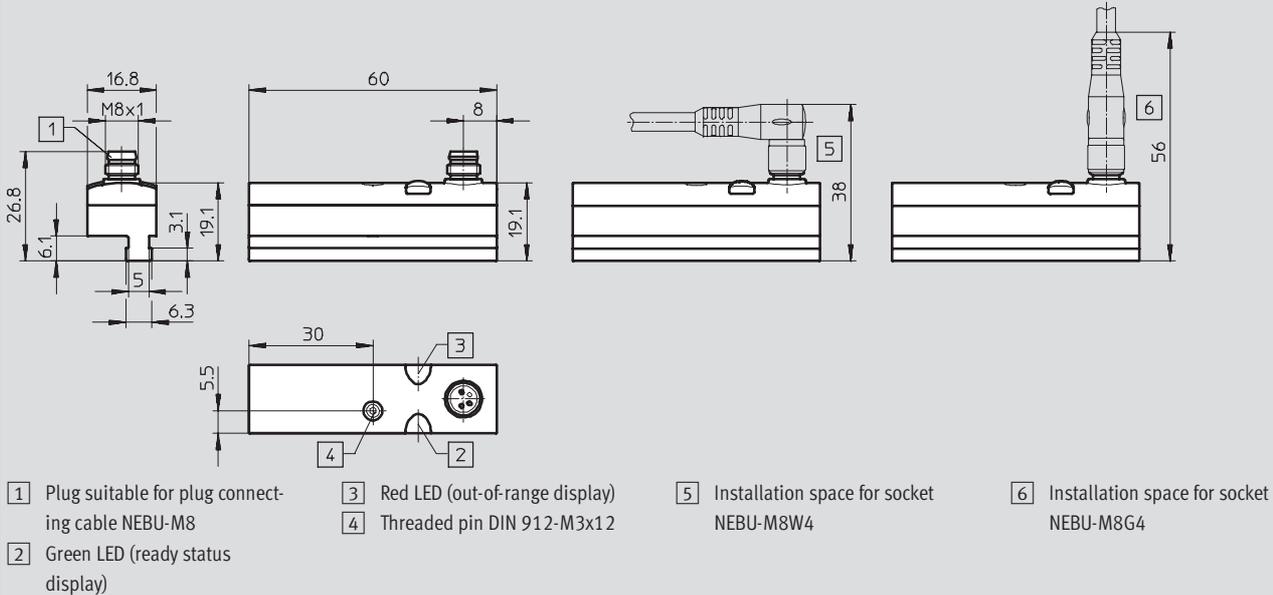
Analogue output as a function of the piston position



Analogue output		Description	Range
[V]	[mA]		
0	0	No valid signal, e.g. no operating voltage	–
1	2	Piston outside of measuring range after operating voltage is switched on	A, C
2	4	Piston has left the measuring range in the negative direction	A
10	20	Piston has left the measuring range in the positive direction	C
2 ... 10	4 ... 20	Piston within the measuring range at the relevant position	B

Dimensions

Download CAD data → www.festo.com/en/engineering



Ordering data

	Analogue output	Electrical connection	Part No.	Type
	0 ... 10 V 0 ... 20 mA	Plug M8x1, 4-pin	540 191	SMAT-8E-S50-IU-M8

Position transmitters SMAT-8E, for T-slot

Accessories



Connecting cable M8x1

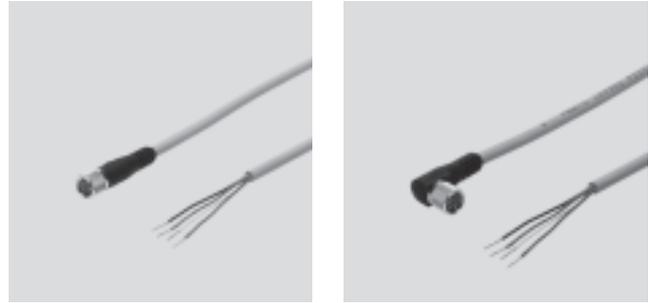
NEBU-M8G4

NEBU-M8W4

Material:

Housing: Polyurethane

Cable sheath: Polyurethane



Ordering data					
Switch output		Switching status display via LED	Cable length [m]	Part No.	Type
PNP	NPN				
Straight socket					
■	■	-	2.5	541 342	NEBU-M8G4-K-2.5-LE4
■	■	-	5	541 343	NEBU-M8G4-K-5-LE4
Angled socket					
■	■	-	2.5	541 344	NEBU-M8W4-K-2.5-LE4
■	■	-	5	541 345	NEBU-M8W4-K-5-LE4