

# Position transmitters SMAT-8E, for T-slot

Product overview



- Position measuring range 50 mm
- Analogue output 0 ... 10 V and 0 ... 20 mA
- Integrated out-of-range detection
- Repeat accuracy  $\pm 0.064$  mm
- Direct mounting in T-slot

Detailed product information

→ [www.festo.com/catalogue/smat](http://www.festo.com/catalogue/smat)

Product overview							
Design	Type of mounting	Measuring principle	Operating voltage range	Analogue output	Switch output	Switching element function	→ Page/Internet
Position transmitter SMAT-8E							
For T-slot	Insertable in slot lengthwise	Magnetic	15 ... 30 V DC	0 ... 10 V 0 ... 20 mA	–	–	3

# Position transmitters SMAT-8E, for T-slot

Key features



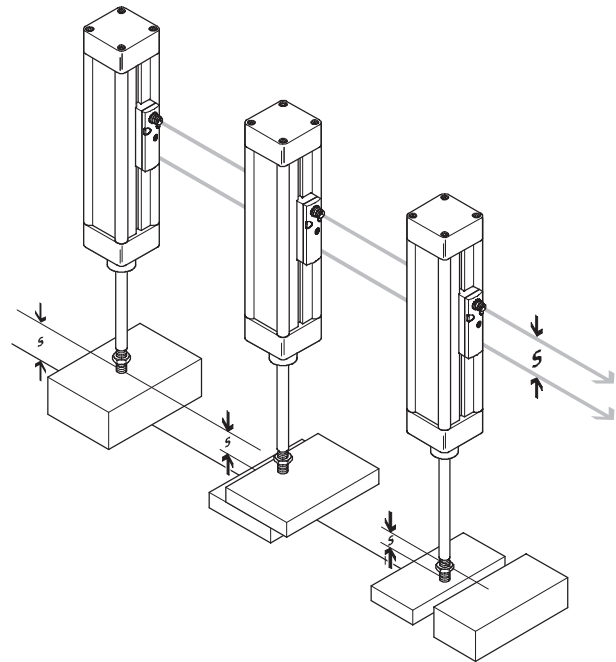
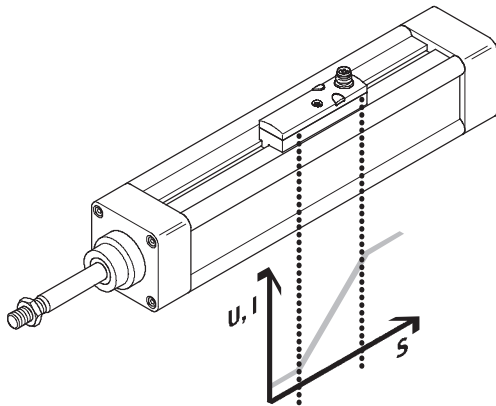
## Design

The SMAT-8E is a sturdy magnetic measuring system with a 50 mm working range, regardless of the drive unit used. It provides a standardised

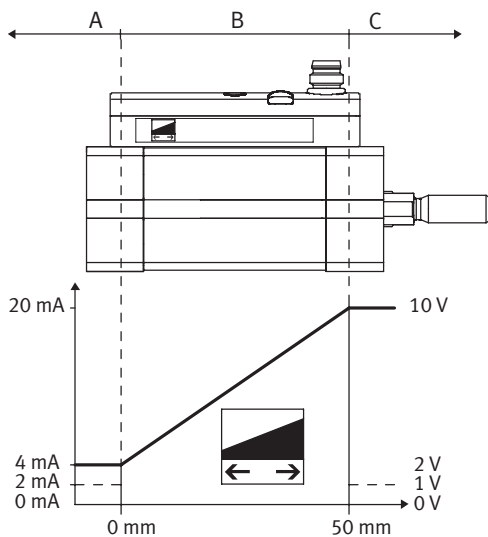
analogue current and voltage signal via an M8x1 plug connection. The transmitter can thus be connected directly to the analogue input

of a programmable logic controller. The piston position of the pneumatic cylinder is detected by contactless sensing and the travel distance can

be measured between any set switching points with typical repeatability of 0.1 mm.



## Analogue output as a function of the piston position



Analogue output [V]	[mA]	Description	Area
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

Note

Sensors that detect magnetic fields, such as the position transmitter SMAT, must not be secured onto the

drive using mountings made from ferritic materials, as this can lead to malfunction.

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Selection aid

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Drive	Piston Ø	Suitability	Drive	Piston Ø	Suitability
<b>Standards-based cylinders</b>			<b>Drives with linear guide</b>		
Standard cylinders DSNU, ESNU		o	Mini slides SLS, SLF, SLT		-
Standard cylinders DSN, ESN		o	Twin cylinders SPZ	Ø 10, 25	o
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	o
Standard cylinders ADN		++	Mini guided drives DFC		-
<b>Cylinders with piston rod</b>			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	+
Flat cylinders DZF	Ø 12, 25, 32, 40, 63	+		Ø 40, 50	++
	Ø 18, 50	++		Ø 63	-
Flat cylinders DZH	Ø 16 ... 25	+	Linear units SLE		-
	Ø 32 ... 63	-	Twin cylinders DPZC		-
Round cylinders DSNU, ESNU		o	Twin cylinders DPZ		-
Round cylinders DSW, ESW		o	<b>Handling units</b>		
Round cylinders DSEU, ESEU		o	Linear modules HMP		-
Multimount cylinders DMM, EMM		+	Linear modules HMPL		-
Round cylinders CRDG		o	Handling modules HSP		-
Round cylinders CRDSW		o	Feed separators HPV		-
Standard cylinders CRHD		o	Three-point grippers HGD		-
Standard cylinders CRDSNU		o	Parallel grippers HGP		-
Standard cylinders CRDNG		-	Parallel grippers HGPP		-
Standard cylinders CRDNGS		-	Parallel grippers HGPT		-
<b>Rodless cylinders</b>			Angle grippers HGW		-
Linear drives DGC		-	Radial grippers HGR		-
Linear drives DGP, DGPL		-	<b>Cushioning components</b>		
Linear drives SLG		-	Hydraulic stop elements YSRWJ		-
Linear drives DGO		-	<b>Electrical positioning systems</b>		
Linear drives SLM	Ø 12, 40	++	Toothed belt axes DGE-ZR		-
	Ø 16 ... 32	o	Spindle axes DGE-SP		-
<b>Semi-rotary drives</b>			<b>System components</b>		
Swivel modules DSM	Ø 6 ... 10	-	Heavy-duty guides HD		-
Semi-rotary drives DRQ		-	<b>Valve actuators</b>		
Semi-rotary drives DRQD	Ø 6, 8, 12, 40, 50	-	Copac linear actuators DLP-A		-
	Ø 16 ... 32	++	<b>Function-oriented drives</b>		
Stopper cylinders STA, STAF		-	Linear/swivel clamps CLR		o
Linear/swivel clamps CLR		o	Swivel/linear units DSL		-
Swivel/linear units DSL		-			

++ Unrestricted use

+ Sensor function guaranteed without restriction; installation direction and clamping are drive-specific

o Upon request

- Not suitable

2009/07 – Subject to change

➔ Internet: [www.festo.com/catalogue/...](http://www.festo.com/catalogue/...)

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
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Type codes, technical data

Type codes	
SMAT – 8E – S50 – IU – M8	
<b>Type</b>	
SMAT	Position transmitter, magnetic
<b>Design</b>	
8E	For T-slot, insertable from end
<b>Position measuring range</b>	
S50	48 ... 52 mm
<b>Analogue output</b>	
IU	0 ... 10 V, 0 ... 20 mA
<b>Electrical connection</b>	
M8	Plug M8x1

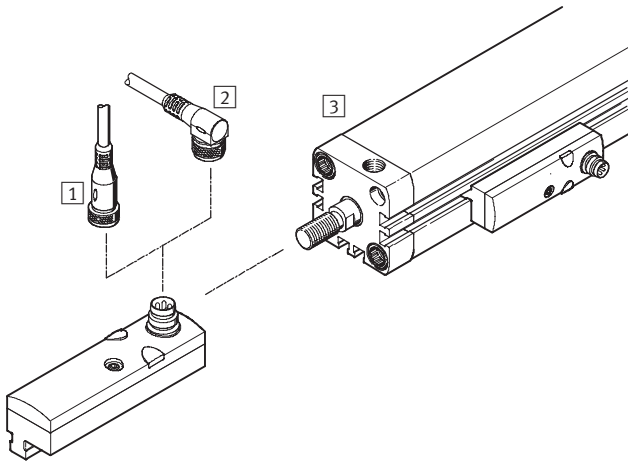
Technical data		
<b>Design</b>		
Design	For T-slot	
Type of mounting	Clamped, insertable in slot lengthwise	
Status display	Red LED = outside measuring range	
<b>Electrical data</b>		
Analogue output	[V]	0 ... 10
	[mA]	0 ... 20
Typical scanning interval	[ms]	2.85
Displacement resolution	[mm]	0.064
Electrical connection	Plug, M8x1, 4-pin	
Operating voltage range	[V DC]	15 ... 30
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
Repetition accuracy, analogue value <sup>1)</sup>	[mm]	±0.064
Typical linearity error	[mm]	0.25
Max. speed of travel	[m/s]	3
Protection class	IP65, IP67	
<b>Operating and environmental conditions</b>		
Ambient temperature <sup>2)</sup>	[°C]	-20 ... +50
CE mark (see declaration of conformity)	In accordance with EU EMC directive	
Certification	c UL us - Listed (OL) C-Tick	
<b>Materials</b>		
Housing	Reinforced polyamide Polycarbonate	

- 1) Use of a non-rotating piston rod or a mechanical structure to protect against rotation is recommended  
 2) Extended ambient temperature range on request




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

Peripherals overview



Accessories		→ Page/Internet
1	Connecting cable NEBU-M8G4	5
2	Connecting cable NEBU-M8W4	5
3	Fitted to drive with T-slot	3

Ordering data – Connecting cables				
Technical data → Internet: nebu				
	Number of wires	Cable length [m]	Part No.	Type
<b>Straight plug socket, open end</b>				
	4	2.5	541 342	NEBU-M8G4-K-2.5-LE4
		5	541 343	NEBU-M8G4-K-5-LE4
<b>Angled plug socket, open end</b>				
	4	2.5	541 344	NEBU-M8W4-K-2.5-LE4
<b>Straight plug socket, straight plug</b>				
	4	2.5	554 035	NEBU-M8G4-K-2.5-M8G4