

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



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

Key features



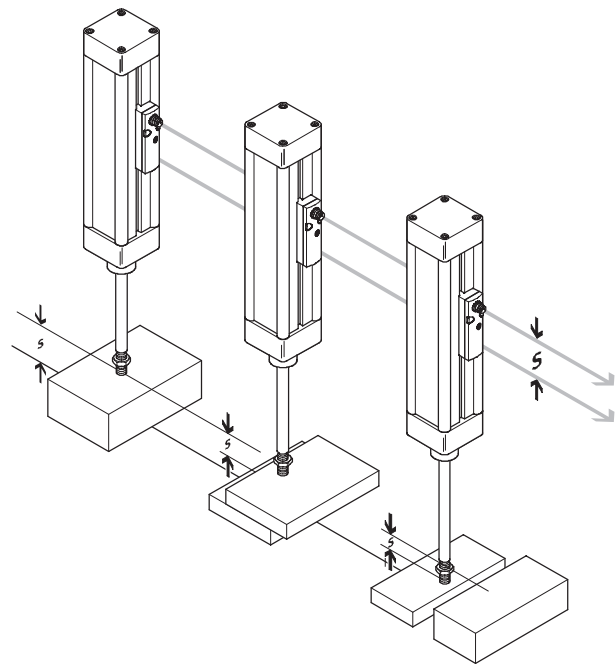
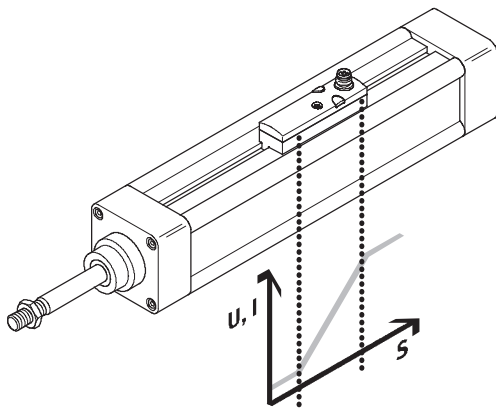
## Design

The SMAT-8E is a sturdy magnetic measuring system with a 50 mm range. It provides a standardised analogue current and voltage signal

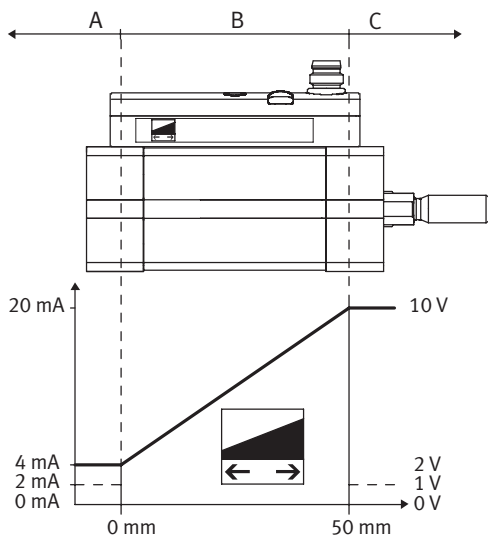
via an M8x1 plug connection, regardless of the drive used. The transmitter can thus be connected directly to the analogue input of a programmable

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 piston position



Analogue output		Description	Range
[V]	[mA]		
0	0	No valid signal, e.g. no operating voltage	–
1	2	Piston outside of the measuring range after the 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

**FESTO**

Drive	Piston Ø	Suitability
<b>Standards-based cylinders</b>		
Standard cylinders DSNU, ESNU	Ø 16 ... 25	++
Standard cylinders DSN, ESN		-
Standard cylinders DNCB		++
Standard cylinders DNC		++
Standard cylinders DNG		-
Standard cylinders CDN-...-R with sensor strip		-
Standard cylinders DNU		-
Standard cylinders ADN		++
<b>Cylinders with piston rod</b>		
Compact cylinders ADVU, AEVU		++
Short-stroke cylinders ADVC, AEVC	Ø 6 ... 25	-
	Ø 32 ... 100	++
Flat cylinders EZH-10/40-40-A-B		+
Flat cylinders DZF	Ø 12, 25, 32, 40, 63	+
	Ø 18, 50	++
Flat cylinders DZH	Ø 16 ... 25	+
	Ø 32 ... 63	-
Round cylinders DSNU, ESNU		0
Round cylinders DSEU, ESEU		0
Multimount cylinders DMM, EMM		+
Round cylinders CRDG		0
Round cylinders CRDSW		0
Standard cylinders CRHD		0
Standard cylinders CRDSNU		0
Standard cylinders CRDNG		-
Standard cylinders CRDNGS		-
<b>Rodless cylinders</b>		
Linear drives DGC		-
Linear drives DGP, DGPL		-
Linear drives SLG		-
Linear drives DGO		-
Linear drives SLM	Ø 12, 40	++
	Ø 16 ... 32	0
<b>Semi-rotary drives</b>		
Swivel modules DSM	Ø 6 ... 10	-
Semi-rotary drives DRQ		-
Semi-rotary drives DRQD	Ø 6, 8, 12, 40, 50	-
	Ø 16 ... 32	++
<b>Function-oriented drives</b>		
Stopper cylinders STA, STAF		-
Linear/swivel clamps CLR		0
Swivel/linear units DSL		-

Drive	Piston Ø	Suitability
<b>Drives with linear guide</b>		
Mini slides SLS, SLF, SLT		-
Twin-piston cylinders SPZ	Ø 10, 25	0
	Ø 16	++
	Ø 32	-
Guided drives DFP	Ø 10 ... 16	-
	Ø 25 ... 80	0
Mini guided drives DFC		-
Guided drives DFM	Ø 12, 25, 50	++
	Ø 16, 20, 32, 40, 63, 80	+
	Ø 100	-
Guided drives DFM-B	Ø 12, 16, 25, 32	-
	Ø 20	+
	Ø 40, 50	++
	Ø 63	-
Linear units SLE		-
Twin-piston cylinders DPZC		-
Twin-piston cylinders DPZ		-
<b>Handling units</b>		
Linear modules HMP		-
Linear modules HMPL		-
Handling modules HSP		-
Feed separators HPV		-
Three-point grippers HGD		-
Parallel grippers HGP		-
Parallel grippers HGPP		-
Parallel grippers HGPT		-
Angle grippers HGW		-
Radial grippers HGR		-
<b>Cushioning components</b>		
Stop elements YSRWJ		-
<b>Electrical positioning systems</b>		
Toothed belt axes DGE-ZR		-
Spindle axes DGE-SP		-
<b>System components</b>		
Heavy-duty guides HD		-
<b>Valve actuators</b>		
Copac linear actuators DLP-A		-

++ Unrestricted use

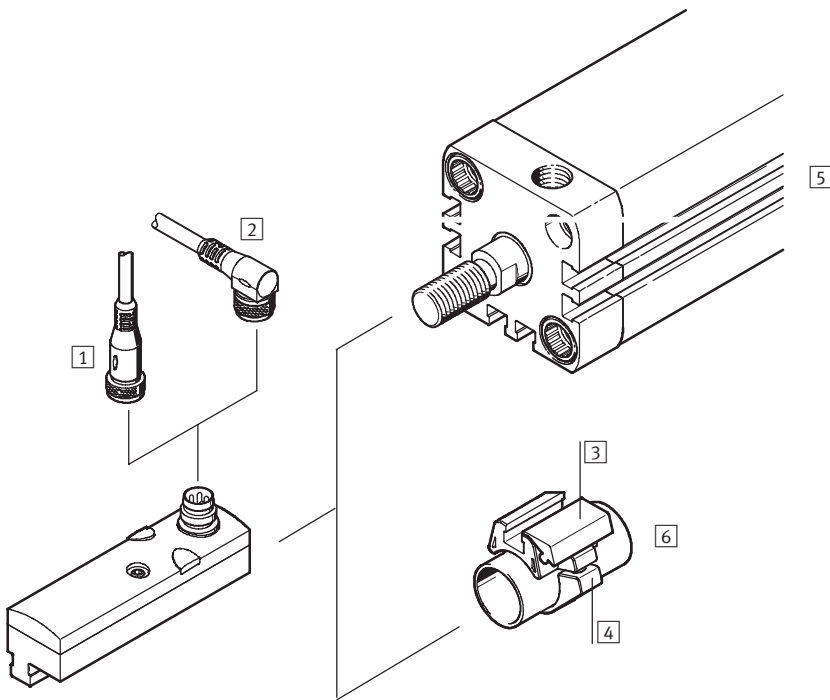
+ Sensor function guaranteed without restriction; installation direction and clamping are drive-specific

0 On request

- Not suitable

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

Peripherals overview

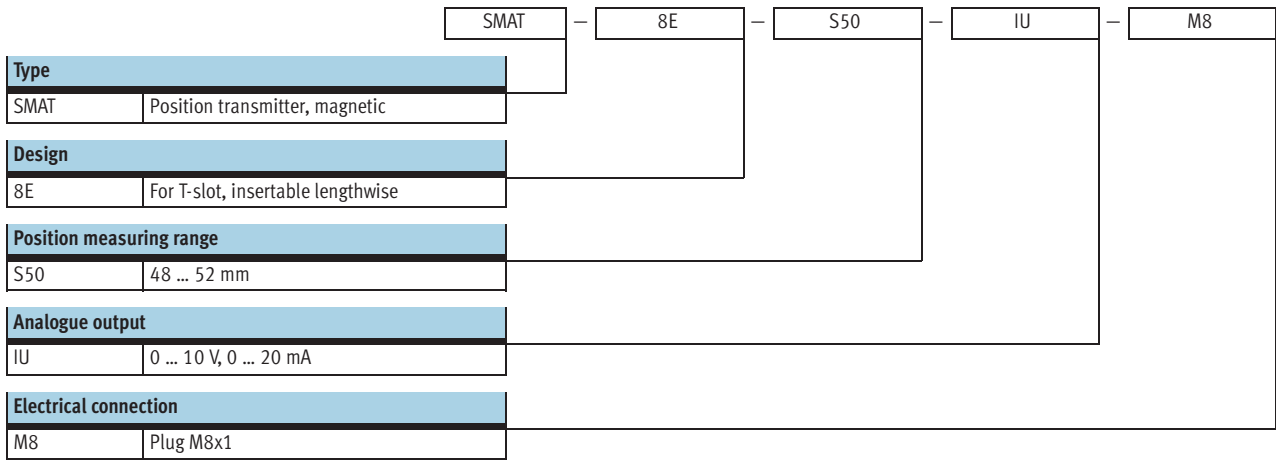


Accessories	→ Page/Internet
1 Connecting cable NEBU-M8G4	8
2 Connecting cable NEBU-M8W4	8
3 Adapter DASP	8
4 Mounting kit SMBR-8	8
5 Standard cylinder DNCB	dncb
Standard cylinder DNC	dnc
Standard cylinder ADN	adn
Compact cylinder ADVU, AEVU	advu
Short-stroke cylinder ADVC, AEVC	advc

Accessories	→ Page/Internet
5 Flat cylinder EZH	ezh
Flat cylinder DZF	dzf
Flat cylinder DZH	dzh
Multimount cylinder DMM, EMM	dmm
Linear drive SLM	slm
Semi-rotary drive DRQD	drqd
Twin-piston cylinder SPZ	spz
Guided drive DFM, DFM-B	dfm
6 Standard cylinder DSNU	dsnu

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

Type codes

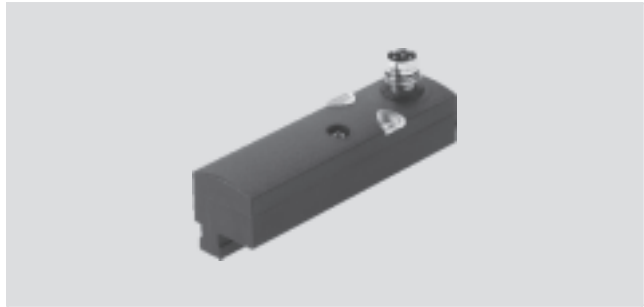
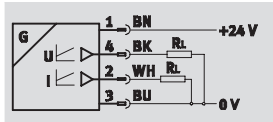


# Position transmitters SMAT-8E, for T-slot

Technical data

Function

Normal operation



General technical data	
Design	For T-slot
Certification	cULus listed (OL) C-Tick
CE mark (see declaration of conformity)	To EU EMC Directive
Note on materials	Free of copper and PTFE RoHS-compliant

Input signal/measuring element	
Measuring principle	Magnetic
Position measuring range [mm]	48 ... 52
Ambient temperature <sup>1)</sup> [°C]	-20 ... +50

1) Extended ambient temperature range on request

Signal processing	
Typ. sampling interval [ms]	2.85
Max. travel speed [m/s]	3

Output, general	
Distance resolution [mm]	0.064

Analogue output		
Analogue output	[V]	0 ... 10
	[mA]	0 ... 20
Sensitivity	[V/mm]	0.152
	[mA/mm]	0.305
Typ. linearity error [mm]		0.25
Repetition accuracy of analogue value <sup>2)</sup> [mm]		±0.064
Min. load resistance of voltage output [Ω]		2,000
Max. load resistance of current output [Ω]		500

2) Use of a non-rotating piston rod or a mechanical structure to protect against rotation is recommended

Output, additional data	
Protection against short circuit	Yes
Protection against overloading	Yes

Electronic components	
Operating voltage range [V DC]	15 ... 30
Idle current [mA]	32
Reverse polarity protection	For all electrical connections

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

Technical data

Electromechanical components	
Electrical connection	Plug M8x1, 4-pin

Mechanical components	
Mounting position	Any
Product weight [g]	15
Materials – Housing	Reinforced polyamide
	Polycarbonate

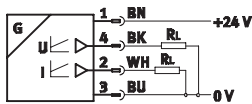
Display/operation	
Ready status display	Green LED
Status display	Red LED = outside measuring range

Immissions/emissions	
Protection class	IP65
	IP67
Corrosion resistance class CRC <sup>3)</sup>	2

3) Corrosion resistance class 2 according to Festo standard 940 070  
 Components subject to moderate corrosion stress. 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

## Pin allocation

Normal operation



Plug



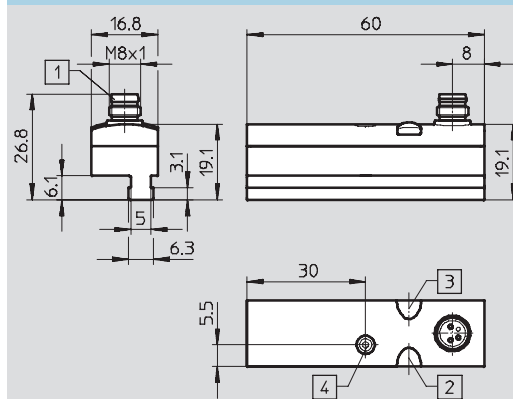
- 1 Operating voltage
- 2 Analogue output 0 ... 20 mA
- 3 0 V
- 4 Analogue output 0 ... 10 V

## Wire colours

- BN = brown
- BK = black
- BU = blue
- WH = white

## Dimensions

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





- 1 Plug to fit connecting cable NEBU-M8
- 2 Green LED
- 3 Red LED
- 4 Threaded pin

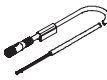
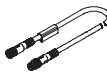
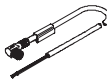
Ordering data				
	Analogue output	Electrical connection	Part No.	Type
	0 ... 10 V 0 ... 20 mA	Plug M8x1, 4-pin	540191	SMAT-8E-S50-IU-M8

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

Accessories

**FESTO**

Ordering data – Mounting attachments			
	For piston Ø	Part No.	Type
<b>Mounting kit SMBR</b>			
	16	175094	SMBR-8-16
	20	175095	SMBR-8-20
	25	175096	SMBR-8-25
<b>Adapter DASP</b>			
	16	566401	DASP-N8-16-AT-AD
	20	566402	DASP-N8-20-AT-AD
	25	566403	DASP-N8-25-AT-AD

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	541343	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	541344	NEBU-M8W4-K-2.5-LE4