

Inductive displacement transducer

Series SM42



- Extended measuring stroke according to series SM40
- Stroke up to 360mm
- Integrated electronic circuit
- Protection IP66
- Accuracy 0,5% or 0,25%

Operating principle:

A nickel iron core will be moved linear inside a coil. The displacement of the core leads to an inductance variation in parts of the coil. That generates more information about the position of the core than a linear variable differential transformer or half-bridge transformers. The integrated electronic circuit converts this informations in a signal proportional to the displacement of the core.

Standard measuring stroke:

80 mm	170 mm	240 mm	360 mm
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Technical data:

Accuracy	< 0,5% or 0,25%
Temperature drift	< 0,01% / °C
Frequency limit	800 Hz
Temperature range	-20°C up to +85°C
Resistance to shock	250g SRS 20-2000Hz
Resistance to vibration	20g rms (50g peak)
Protection class	IP66 *

* with mounted mating plug B1423

Note: Unless otherwise stated, all values are valid at +20°C ambient temperature and 30V DC or ±15V DC supply voltage, starting 10 minutes after switch-on.

Standard versions:

Type	Output	Supply voltage U_B *	Signal**	Mid
SM421	0 .. 20 mA	20 .. 32 V	increasing	10 mA
SM422			decreasing	
SM423	4 .. 20 mA	20 .. 32 V	increasing	12 mA
SM424			decreasing	
SM425	± 10 V	±13 .. ±16 V	increasing	0 V
SM426			decreasing	
SM427	0..10 V	20 .. 32 V	increasing	5 V
SM428			decreasing	

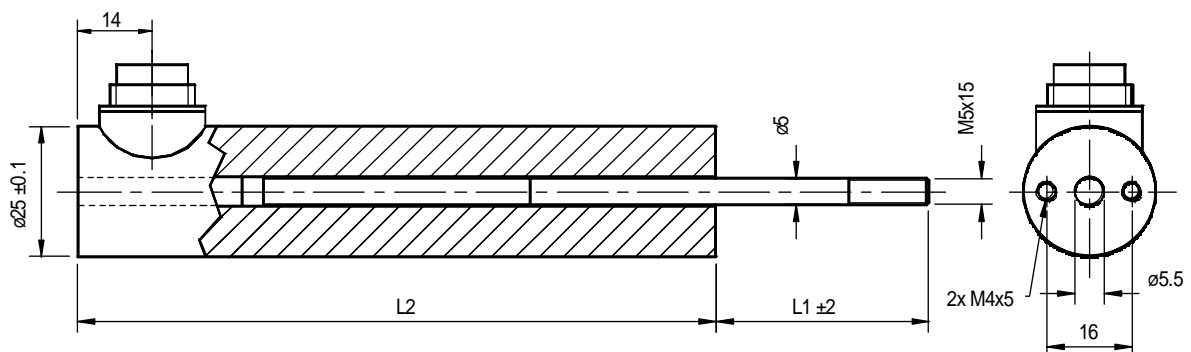
* Pole reversal protection

** Increasing signal by moving the plunger in the direction towards the plug.

Dimensions and masses:

Stroke mm	L1 mm	L2 mm	Transducer	Plunger
80	70	140	240g	19g
170	115	250	380g	31g
240	150	350	520g	41g
360	210	500	720g	56g

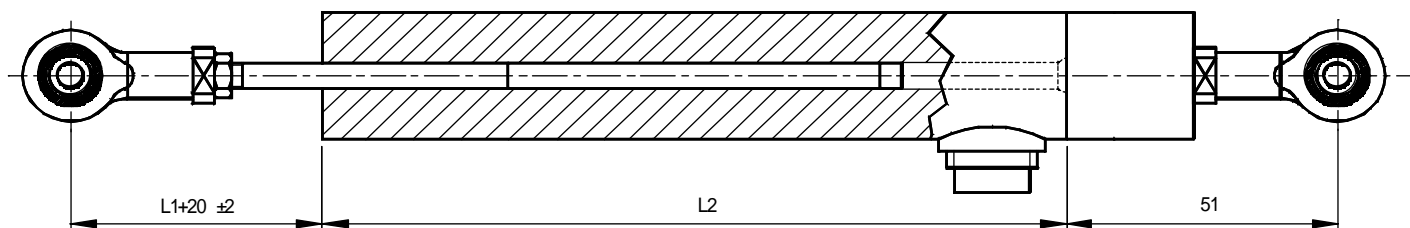
L1 = Plunger in central position



SM42 Versions:

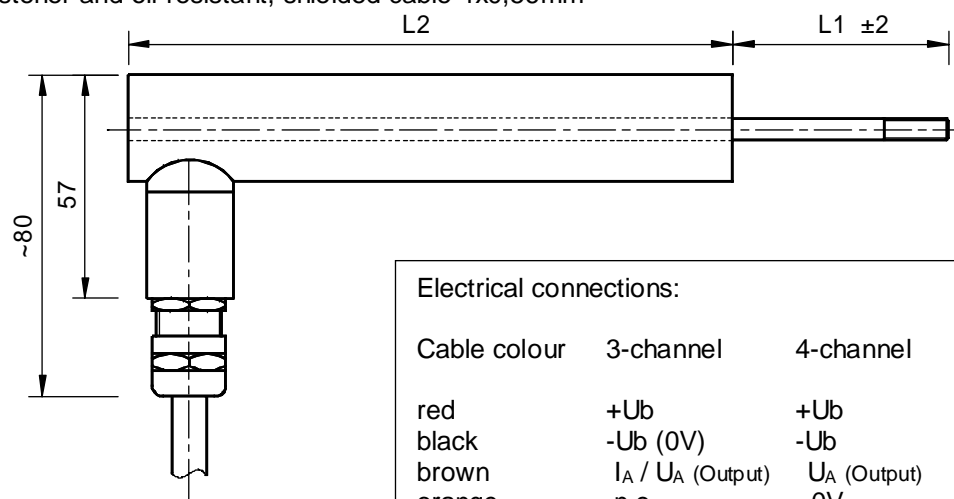
SM42x .FGH (Version .G means only 1 ball joint at plunger)

With 2 ball joints M5, plunger ($\varnothing 5\text{mm}$) captivated and guided in brass bush



SM42x .Kxx (xx=Cable length in meter)

with Pg9-fastener and oil-resistant, shielded cable $4 \times 0,56\text{mm}^2$



Electrical connections:

Cable colour	3-channel	4-channel
red	+Ub	+Ub
black	-Ub (0V)	-Ub
brown	I_A / U_A (Output)	U_A (Output)
orange	n.c.	0V

Additional versions:

- Extended temperature range up to 100°C with kynar leads AWG 20
- Different supply-voltages and outputs
- Modified strokes (special calibration) for standard-transducers

Current output (SM421..424):

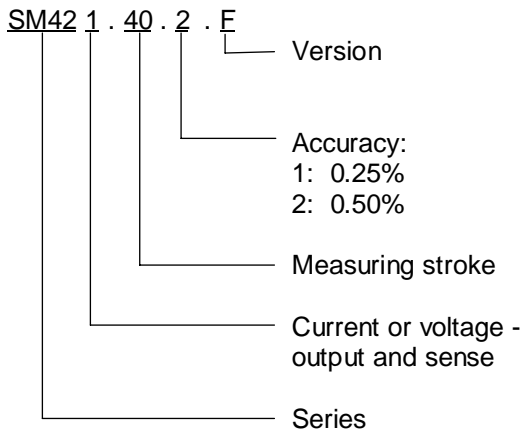
Output signal	0..20 mA or 4..20 mA
Supply current I_B	max. 60 mA
Load resistance R_L	0..500 Ω
Residual ripple	< 0,005 mA _{SS}
Dependence on R_L	< 0,001% at $\Delta R_L = 100\Omega$
Dependence on U_B	< 0,05% at $\Delta U_B = 1V$

Voltage output (SM425..428):

Output signal	± 10 VDC or 0..10 VDC
Supply current I_B	max. 50 mA
Permissible load R_L	≥ 2 k Ω (short-circuit proof)
Residual ripple	< 5 mV _{SS}
Residual voltage SM427/428	max. 0,1VDC
Dependence on U_B	< 0,05% at $\Delta U_B = 1V$

Materials:

External and internal tube	Stainless steel
Plunger	Stainless steel
Core	Stainless nickel-iron core
Connector housing	Nickel plated brass
Connector contacts	Gold plated brass

Order code

Order codes for customer specified versions will be named at plant.

For example: SM423.170.2

Transducer series 42, output 4-20 mA (increasing), 170mm measuring stroke, accuracy 0.5%

Mating plugs:

- IP40: SM901.400.(3/4)
Metal case
(must be ordered separately)
- IP66: SM901.402.(3/4)
Metal case with outer ring
Connected to ground
(must be ordered separately)

Electrical connections on plug

(View to the plug at transducer)

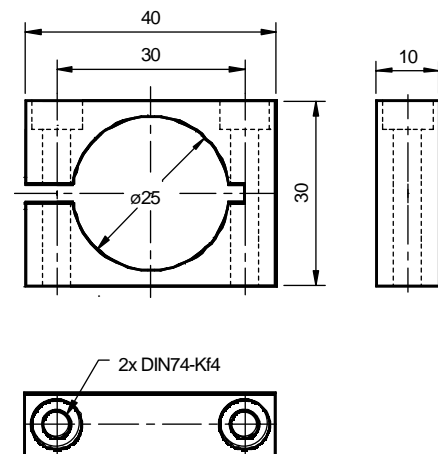
3-channel Output /1 /2 /3 /4 /7 /8	4-channel Output /5 /6
1: + U_B 2: - U_B (0V) 3: I_A / U_A (Output)	1: + U_B 2: 0V 3: - U_B 4: U_A (Output)

Special versions and accessories:

Version .K	With Pg9-fastener and cable
Version .FGH	With 2 ball joints M5, guided plunger
Version .G	With 1 ball joint M5 at plunger
SM906.400	Mounting block

Mounting block SM906.400

(inkl. 2 mounting screws M4x35 DIN912 VA)



Vertrieb durch

a.b.jödden gmbh
Von-Beckerath-Platz 4
D-47799 Krefeld
Fon 02151 516259- 0
Fax 02151 516259-20
info@ abjoedden.de
www.abjoedden.de