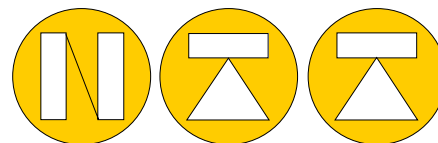


## Inductive displacement transducer Series SM420



NORDIC TRANSDUCER

- Extended measuring stroke according to series SM400
- 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 a half-bridge transformer. The integrated electronic circuit converts this information's into a signal proportional to the displacement of the core.

### Standard measuring strokes:

80mm 170m 240mm 360mm

### 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*

\* Mount mating plug Binder series 423 (IP67)

Binder serie 680 are used as standard supply ( IP40)

### 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 ohm
Residual ripple	< 0.005 mA <sub>SS</sub>
Dependence on $R_L$	< 0.001% at $R_L=100\text{ohm}$
Dependence on $U_B$	< 0.05% at $U_B = 1V$

### Voltage output (SM425..428):

Output signal	$\pm 10$ VDC or 0..10 VDC
Supply current $I_B$	max. 50 mA
Permissible load $R_L$	>2kohm(shortcircuit proof)
Residual ripple	< 5 mV <sub>SS</sub>
Residual voltage SM427/428	max. 0,1VDC
Dependence on $U_B$	< 0.05% at „ $U_B = 1V$

Note: Unless otherwise stated, all values are valid at +20°C ambient temperature and 30V DC or  $\pm 15V$  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	$\pm 10$ V	$\pm 13 .. \pm 16$ 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:

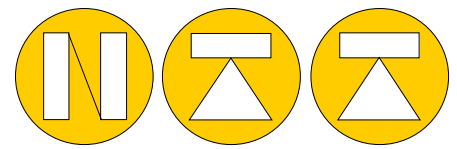
Stroke mm	L1 mm	L2 mm	Transducer	Plunger
80	70	140	240g	19g
170	115	250	380g	31g
240	150	350	520g	41g
360	210	500	720g	56g

L1 = Plunger in central position

### 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

# Inductive displacement transducer Series SM420



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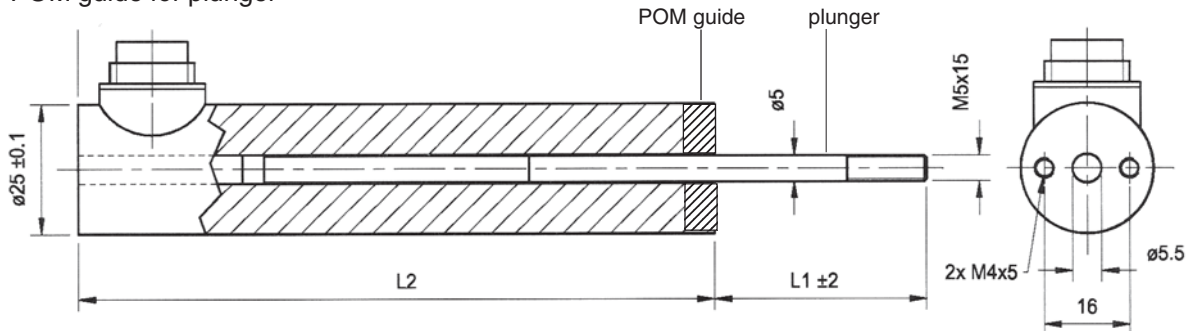
Dimensions and masses:

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

## SM42x.F

F = POM guide for plunger

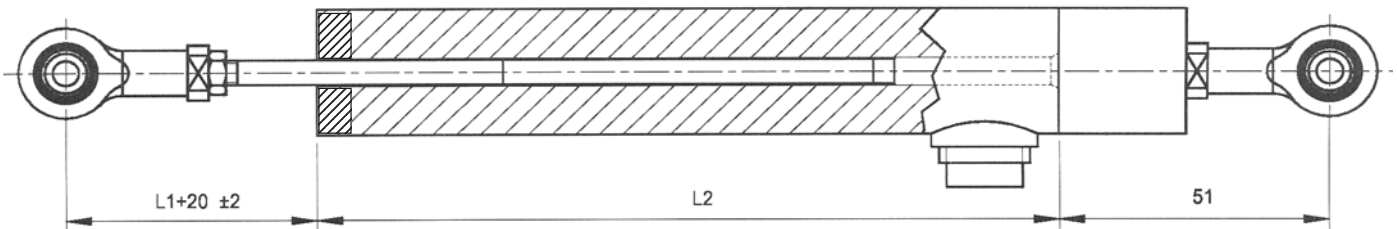


## SM42x.FGH

F = POM guide for plunger

G = Ball bearing on plunger

H = Mount + ball bearing at housing

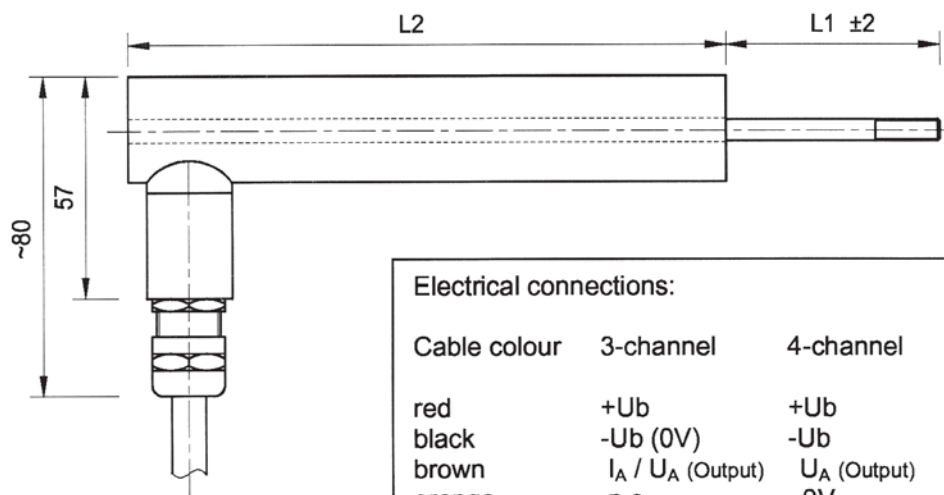


## SM42x.Kxx

K = cable with PG9 and shielded cable 4 x 0,56 mm<sup>2</sup>

KPy = cable with PG9 and PUR oil resistant shielded cable 3 x 0,56 mm<sup>2</sup>

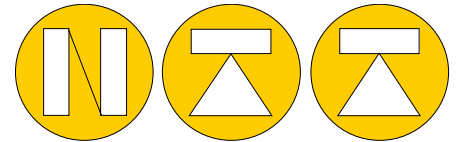
xx = cable length



Electrical connections:

Cable colour	3-channel	4-channel
red	+Ub	+Ub
black	-Ub (0V)	-Ub
brown	I <sub>A</sub> / U <sub>A</sub> (Output)	U <sub>A</sub> (Output)
orange	n.c.	0V

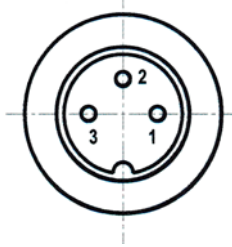
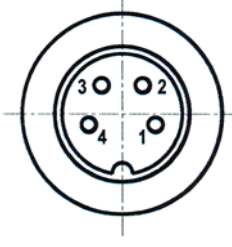
# Inductive displacement transducer Series SM420



**NORDIC TRANSDUCER**

## Electrical connections on plug

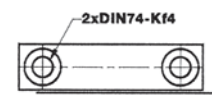
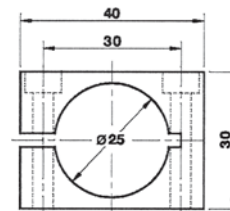
Binder series 680 as standard part of the supply  
 Binder serie 423 IP67 as option  
 ( View to the plug at transducer )

3 Wire system for model 421,422, 423,424,427,428	4 wire system for model 425 & 426
	
1: +U <sub>B</sub> 2: -U <sub>B</sub> 3: I <sub>A</sub> / UA ( Output )	1: +U <sub>B</sub> 2: 0V 3: -U <sub>B</sub> 4: I <sub>A</sub> / UA ( Output )

## Assembly clamps

### SM906.400

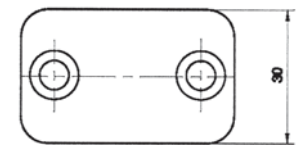
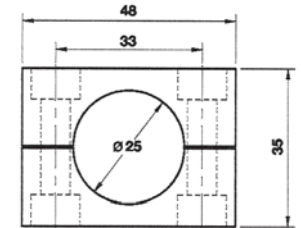
Brass, nickel-plated



(incl.2 fastening screws  
M4x35 DIN912 VA)

### SM906.401

Polypropylene



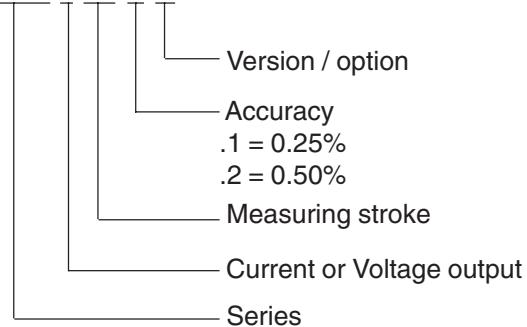
(incl.2 fastening screws  
M6x35 DIN912 VA)

## 420 Versions / options

- F = POM guide for plunger
- G = Ball bearing on plunger M5
- H = Mount and ball bearing at housing M5
- K = Cable outlet
- KP = Cable PUR type
- .2 = 0.50% linearity (420.xx.2)
- .1 = 0.25% linearity (420.xx.1)
- SM901.401 = Binder serie 423 connector
- SM906.400 = Clamp (brass nickel plated)
- SM906.401 = Clamp ( Polypropylene )

## ORDER CODE

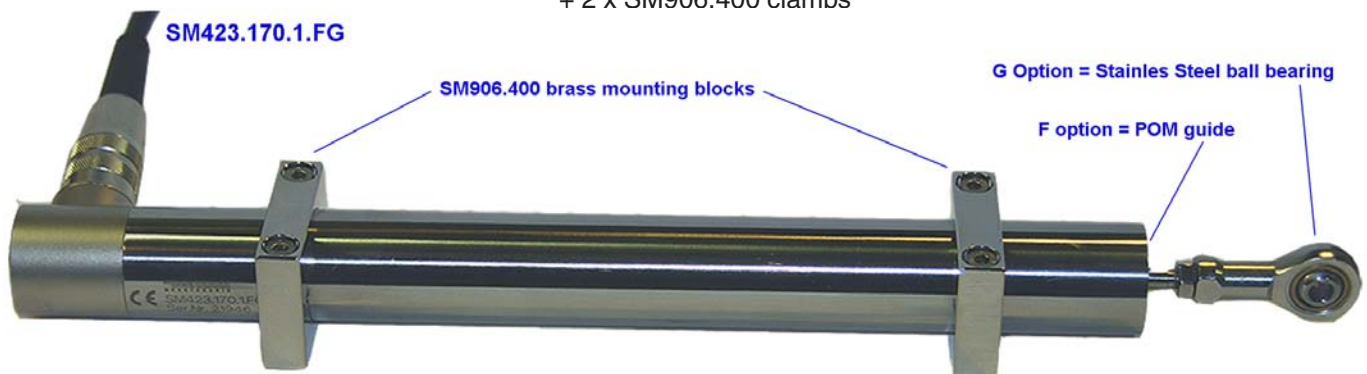
**SM42 1 .80 .2 .F**



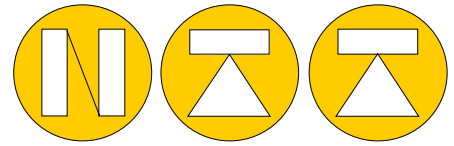
Example: **SM423.170.1.FG**

Serie 423, output 4-20mA ( increasing )

170mm stroke, accuracy 0.25%, FG guide + Ball bearing plunger  
 + 2 x SM906.400 clamps

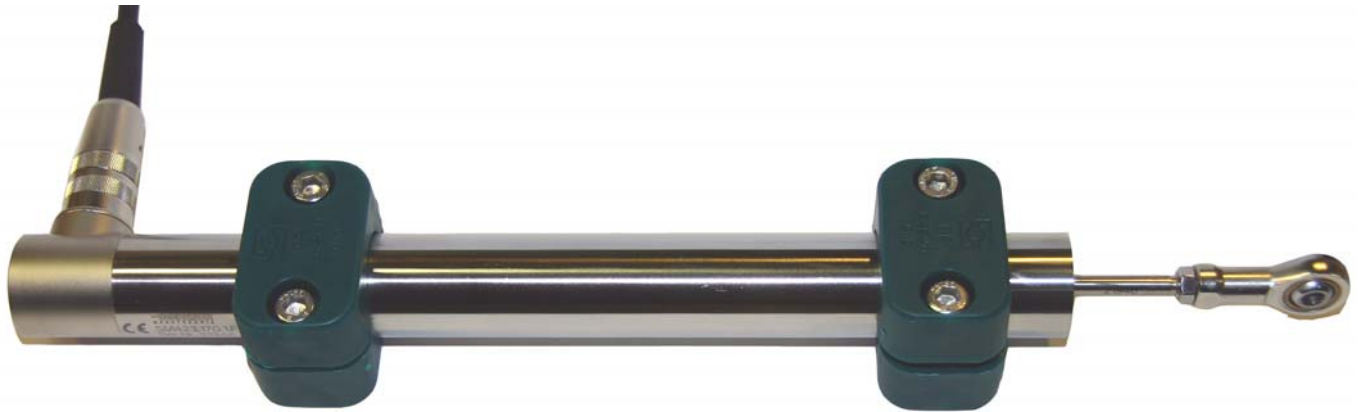


## Inductive displacement transducer Series SM420



**NORDIC TRANSDUCER**

Serie 420 shown with SM906.401 Clamps



*SERIES 400 for strokes from 0-20mm to 0-200mm*