Inductive displacement transducer

NORDIC TRANSDUCER

Series SM300

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:

5mm 10m 15mm

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	IP67*

* *Mount mating plug Binder series 713 (IP67)*

Standard versions:

Type	Output	Supply voltage U_b*	Signal**	Mid
SM301	0 .. 20 mA	20 .. 32 V	increasing	10 mA
SM302			decreasing	
SM303	4 .. 20 mA	20 .. 32 V	increasing	12 mA
SM304			decreasing	
SM305	± 10 V	±13 .. ±16 V	increasing	0 V
SM306			decreasing	
SM307	0..10 V	20 .. 32 V	increasing	5 V
SM308			decreasing	

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

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_{ss}
Dependence on R_L	< 0.001% at RL=100ohm
Dependence on U_B	< 0.05% at UB = 1V

Voltage output (SM425..428):

Output signal	±10 VDC or 0..10 VDC
Supply current IB	max. 50 mA
Permissible load R_L	>2kohm(shortcircuit proof)
Residual ripple	< 5 mV_{SS}
Residual voltage SM307/308	max. 0,1VDC
Dependence on U_B	< 0.05% at „UB = 1V

Materials:

Housing	Nickel plated brass
Plunger	Stainless steel
Core	Stainless nickel-iron core
Connector housing	Nickel plated brass
Connector contacts	Gold plated brass

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.

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SM300/DATA/PM70/122007/REV.01

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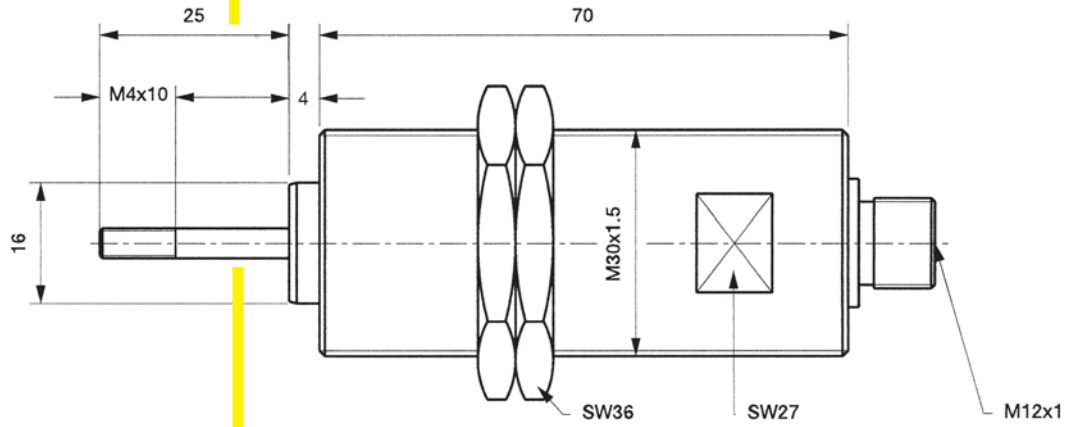
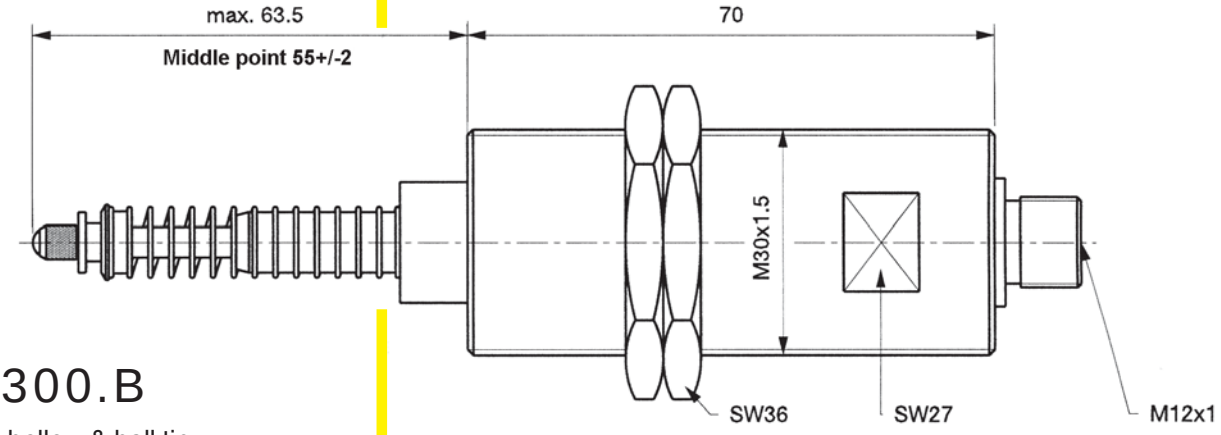
SM300 Standard



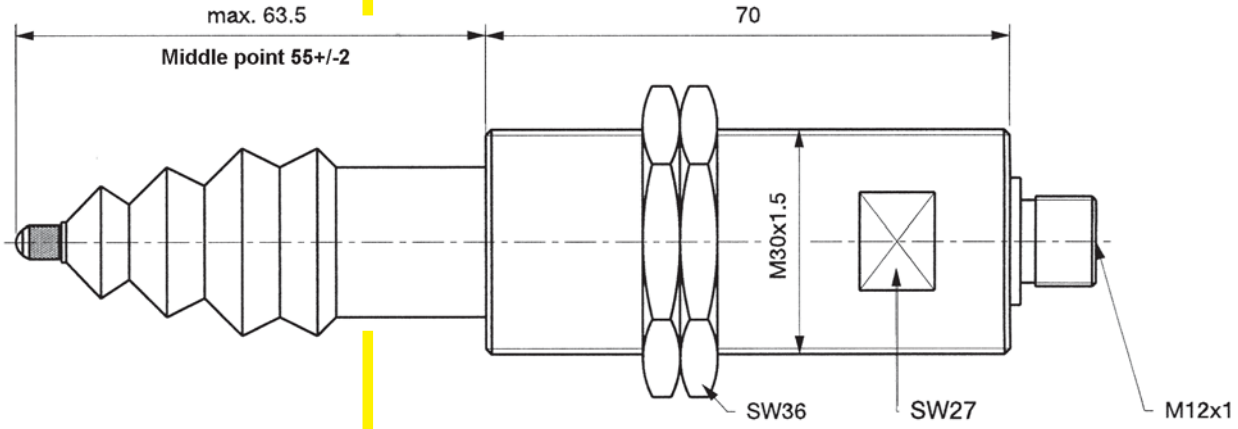
SM300.T

Return spring & ball tip



SM300.B

Spring, bellow & ball tip



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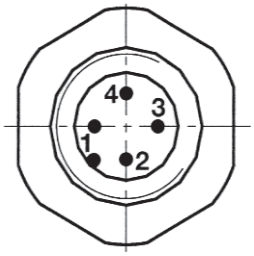
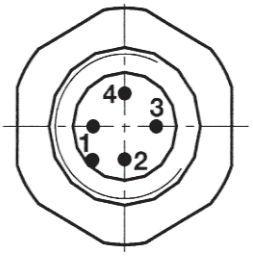
Electrical connections on plug
Binder series 713 as standard part of the supply

(View to the plug at tranducer)

3 Wire system for model 301,302, 303,304,307,308	4 wire system for model 305 & 306
	
1: $+U_B$ 2: not used 3: I_A / U_A (Output) 4:-U_B	1: $+U_B$ 2: 0V 3: U_A (Output) 4: -U_B

ORDER CODE

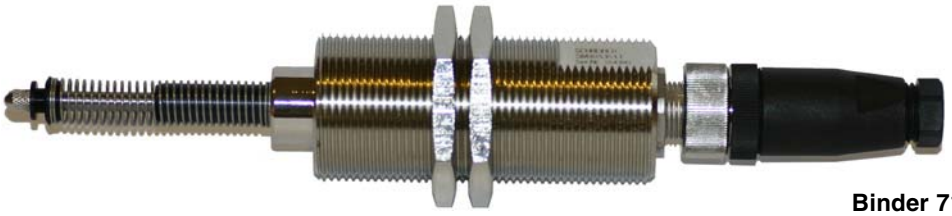
SM30 3 .15 .2 .T

- Version / option
- Accuracy
  - .1 = 0.25%
  - .2 = 0.50%
- Measuring stroke
- Current or Voltage output
- Series

Example: **SM303.15.2.T**
Serie 303, output 4-20mA (increasing)
15mm stroke,
accuracy 0.5%,
T return spring

300 Versions / options

B = Protection bellow
T = Return spring
K = Cable outlet PG9
KP = Cable PUR type
.2 = 0.50% linearity (300.xx.2)
.1 = 0.25% linearity (300.xx.1)



Binder 713 series
Circular female connector with M12x1
Metal thread locking ring
Degree of protection IP67
Cable assembly possible
Screw termination, not shielded

OPTION:
713 series
Circular connector with M12x1 screw-locking
Metal housing with 360° EMC protected
shielding·

Binder 713 series
Circular female angled connector with
M12x1 plastic thread locking ring
Degree of protection IP67
Cable assembly possible
Screw termination, not shielded

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