

MAGNETOSTRICTIVE TRANSDUCER



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MAB Series

Key-Features:

- Available measurement ranges 50 to 4000 mm
- Distance and speed (not with SSI) measurement
- Displacement speed up to 10 m/s
- Linearity up to $\pm 0.01\%$
- Working temperature $-30...+75\text{ }^{\circ}\text{C}$
- Sliding, or floating magnetic cursor
- Protection class IP67
- Output signals: Analog, SSI, CANopen

TECHNICAL DATA

Model		MAB-A	MAB-C	MAB-S
Measurement range	[mm]	50/ 75/ 100/ 130/ 150/ 175/ 200/ 225/ 250/ 300/ 350/ 360/ 400/ 450/ 500/ 550/ 600/ 650/ 700/ 750/ 800/ 850/ 900 950/ 1000/ 1100/ 1200/ 1250/ 1300/ 1400/ 1500/ 1750/ 2000/ 2250/ 2500/ 2750/ 3000/ 3250/ 3500/ 3750/ 4000		
Measured dimension		position / speed	position / speed	position
Measurement range speed	[m/s]	min. 0...0.1, max. 0...10	depending on the scale	-
Accuracy of the speed output	[%]	<2		-
Protection class		IP67		
Displacement speed	[m/s]	≤10		
Displacement force	[N]	<1		
Maximum acceleration	[m/s ²]	≤100		
Linearity sliding magnetic cursor *	[%]	±0.01 (min. ±0.06 mm)	±0.02	±0.01 (min. ±0.06 mm)
Linearity floating magnetic cursor *	[%]	±0.02 at a distance between 2-5 mm	±0.02	±0.02 **
	[%]	±0.04 at a distance between 5-7 mm		
Resolution		16 bit (max. noise 5 mVpp)	5 µm (2 µm on request)	5 µm (2 µm on request)
Repeatability	[mm]	<0.01		
Hysteresis		<0.01 mm		<±0.005 % MR
Shock test DIN IEC68T2-27		100 g, 11 ms		
Vibrations DIN IEC68T2-6		12 g, 10...2000 Hz		
Position read sampling time (table below)	[ms]	0.5 to 3	1 to 4	1
Max. output value		12 V (at 0...10 V), 30 mA (at 4...20 mA)		
Max. current consumption	[mA]	70 (at 0...10 V), 90 (at 4...20 mA)		50
Coefficient of temperature	[ppm/°C]	20		
Max. output load	[kOhm]	5 (at 0...10 V), <0.5 (at 4...20 mA)		RS422/485 Standard
Protection against polarity inversion		yes		
Working temperature	[°C]	-30...+75		-30...+90
Storage temperature	[°C]	-40...+100		-40...+100
Power supply	[VDC]	24, ±20 %		
Output signal		0...10V, 4...20 mA	CANopen DS 301	SSI: Binär, Gray, 24 bit, 25 bit
Electrical connection		5-pole M12-connector	5-pole M12-connector	6-pole M16-connector
Housing material		anodised aluminium, Nylon 66 G 25		

* For strokes >2500 mm use sliding or floating cursors with max. distance of 4 mm to the sensor

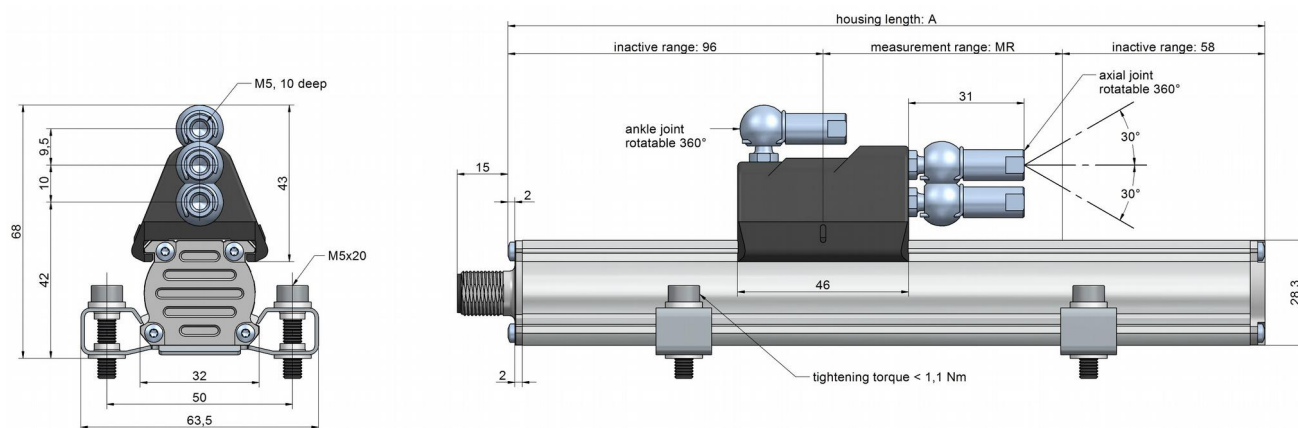
** value depends on the distance between cursor and sensor body

DIMENSIONS AND ELECTRICAL DATA

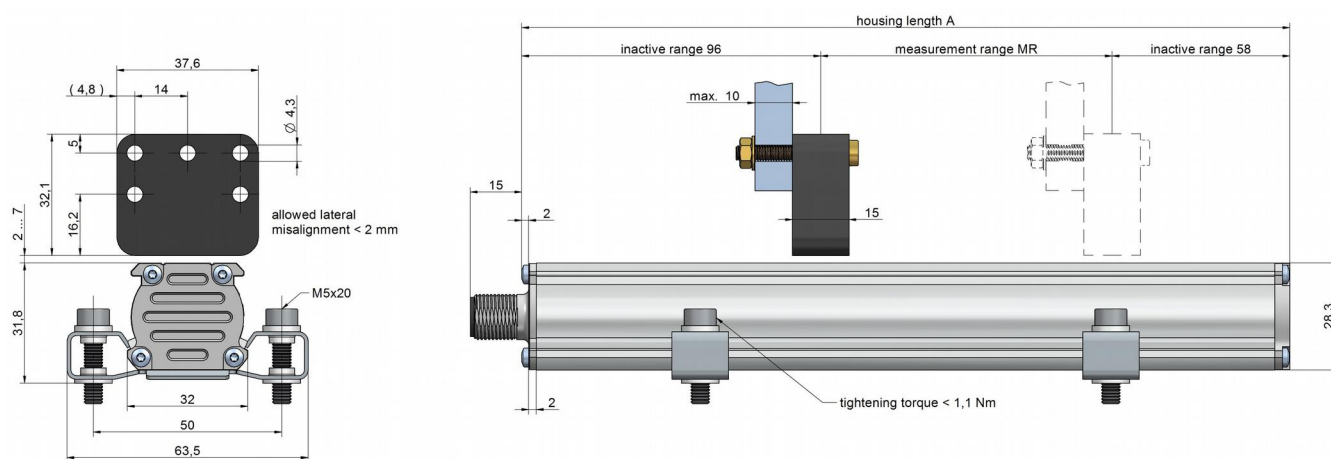
Useful electrical stroke	[mm]	50 to 300	350 to 1100	1200 to 2000	2250 to 3000	3250 to 4000
Sampling time MAB-A	[ms]	0.5	1	1.5	2	3
Sampling time MAB-C	[ms]	1		2	4	
Sampling time MAB-S	[ms]	1		2	4	
Dimensions MAB-A, -C, -S	[mm]	measurement range + 154				

TECHNICAL DRAWING

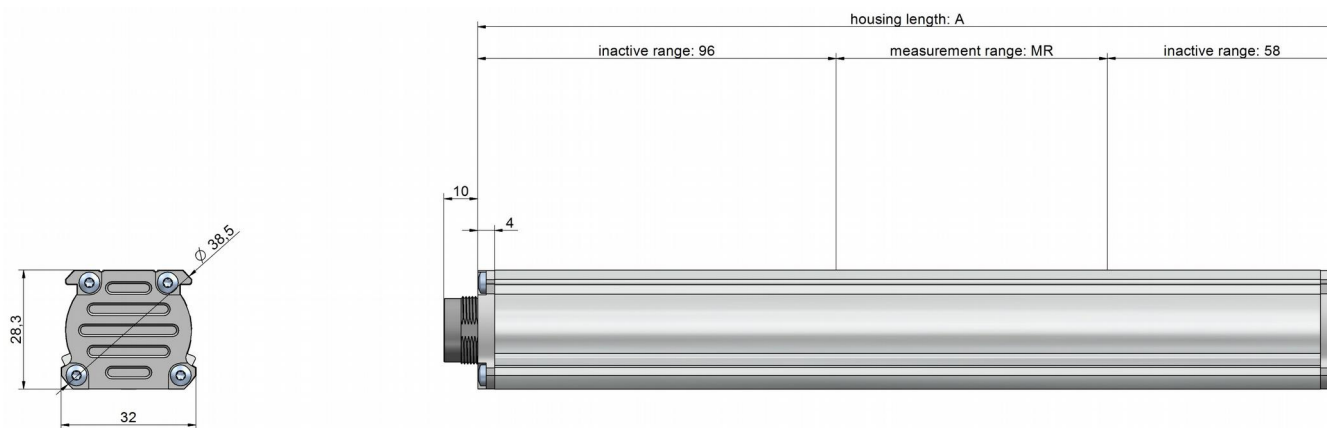
MAB, sliding magnetic cursor



MAB, floating magnetic cursor

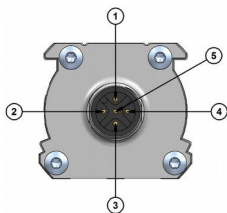


MAB-S



ELECTRICAL CONNECTION

Analog output



Function	PIN
Output magnetic cursor 1	1
GND output magnetic cursor 1, 2, speed	2
Inverse output:	
Output magnetic cursor 2, speed	3
power supply GND	4
power supply +	5

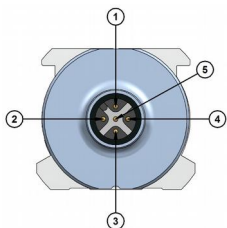
Connector, 5-pole, M12

D5-G-M12-S, straight, IP67
D5-W-M12-S, angular, IP67

Cable with connector K5P..

see at the bottom of this page

CANopen output



Function	PIN
n.c.	1
Power + VDC	2
DC Ground	3
CAN H	4
CAN L	5

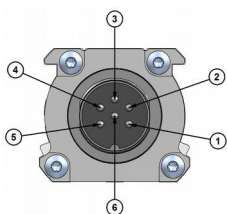
Connector, 5-pole, M12

D5-G-M12-S: straight, IP67
D5-W-M12-S, angular, IP67

CAN Cable with female connector

K5P2M-S-M12-CAN: M12, straight, open cable head, 5-pole, PUR

SSI output



Function	PIN
Data -	1
Data +	2
Clock +	3
Clock -	4
Power supply +	5
Ground	6

Connector, 6-pole, M16

CON021, straight, IP40
CON022, straight, IP67
CON023, angular, IP67

ACCESSORIES

Brackets (not included in delivery)

1 set includes 2 brackets. We recommend to use 1 set for each 1/3 of the measurement range.

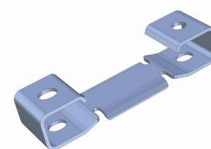
Code: PKIT091

Material: steel

Distance between mounting holes: 50 mm

Overall length: 63.5 mm

Mounting screws: M5



Magnetic cursor (not included in delivery)

The type PCUR068 is a floating magnetic cursor.
The adjustment has to be done 2...7 mm above the MAB-Profile.
Allowed lateral deviation ± 2 mm.
The type PCUR045 represents the standard version.

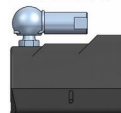
PCUR045



PCUR046



PCUR047

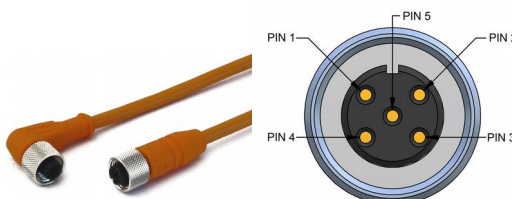


PCUR068



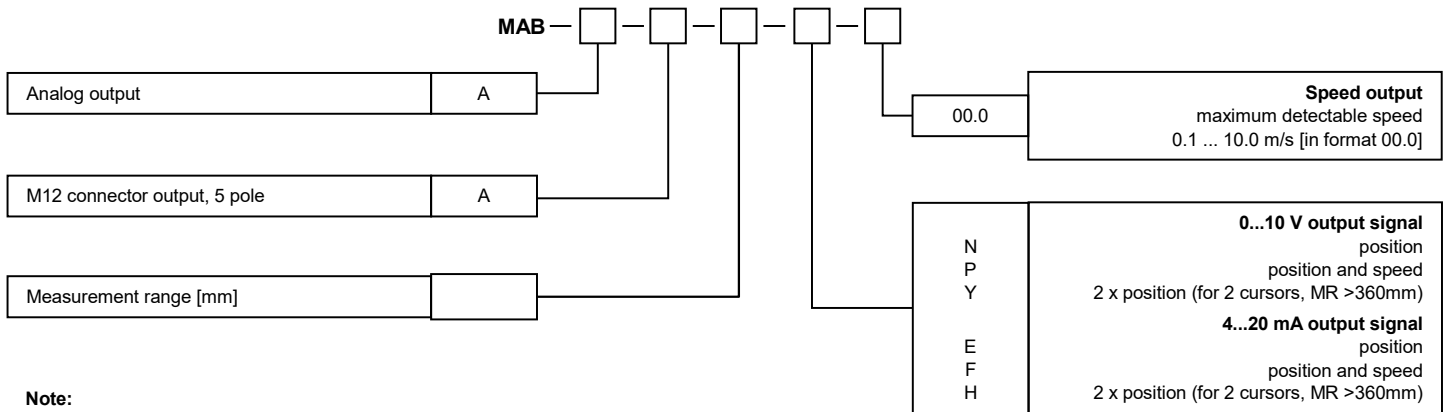
Cable for analog output, connector M12, 5 pole

K5P2M-S-M12	2 m, connector, straight, IP67, shielded
K5P5M-S-M12	5 m, connector, straight, IP67, shielded
K5P10M-S-M12	10 m, connector, straight, IP67, shielded
K5P2M-SW-M12	2 m, connector, angular, IP67, shielded
K5P5M-SW-M12	5 m, connector, angular, IP67, shielded
K5P10M-SW-M12	10 m, connector, angular, IP67, shielded



PIN	Cable colour K5P..
1	brown
2	white
3	blue
4	black
5	grey

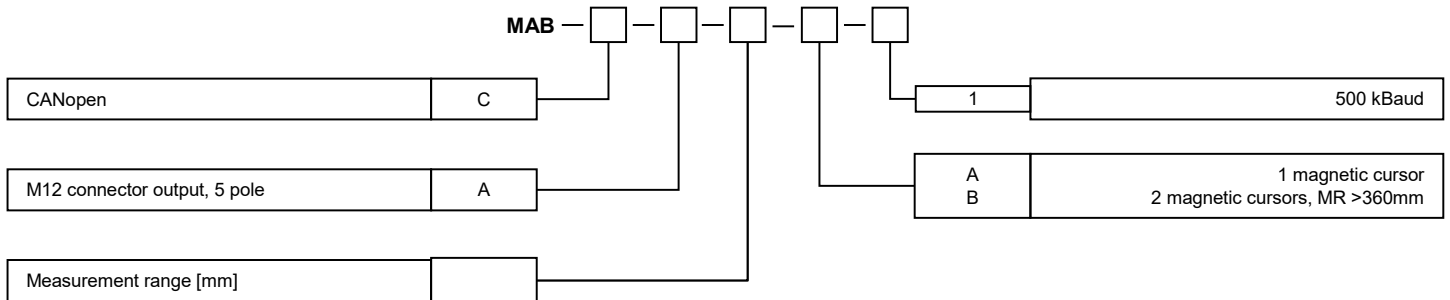
ORDER CODE ANALOG OUTPUT



Note:

- magnetic cursors and brackets have to be ordered separately (see accessories).
- analog output 0...20 mA, 0...5 V, ± 5 V and ± 10 V are available on request.

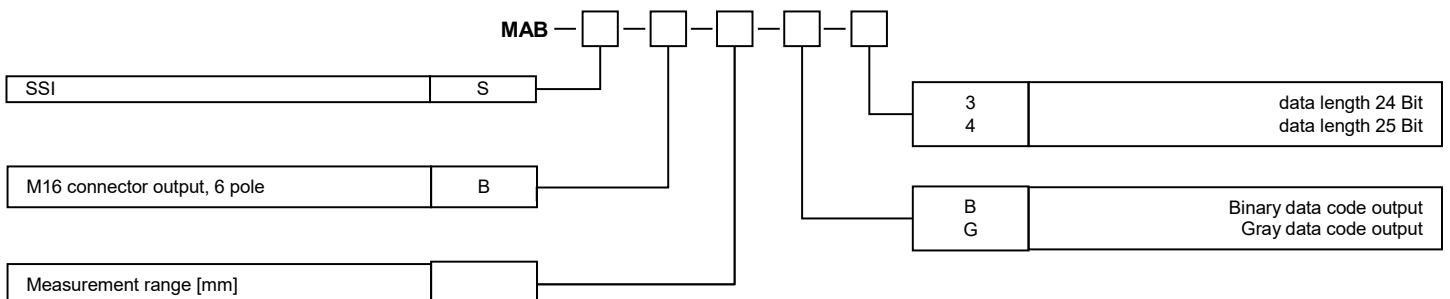
ORDER CODE CANopen OUTPUT



Note:

- magnetic cursors and brackets have to be ordered separately (see accessories).
- other Baud rates and resolutions are available on request.
- additional information, like CANopen Data Protocol is available on request.

ORDER CODE SSI OUTPUT



Note:

- magnetic cursors and brackets have to be ordered separately (see accessories).
- other resolutions are available on request.

OVERVIEW

Base model, 0...10 V Analog output, M12 connector

MAB-AA-50-N	50 mm
MAB-AA-75-N	75 mm
MAB-AA-100-N	100 mm
MAB-AA-130-N	130 mm
MAB-AA-150-N	150 mm
MAB-AA-175-N	175 mm
MAB-AA-200-N	200 mm
MAB-AA-225-N	225 mm
MAB-AA-250-N	250 mm
MAB-AA-300-N	300 mm
MAB-AA-350-N	350 mm
MAB-AA-360-N	360 mm
MAB-AA-400-N	400 mm
MAB-AA-450-N	450 mm
MAB-AA-500-N	500 mm
MAB-AA-550-N	550 mm
MAB-AA-600-N	600 mm
MAB-AA-650-N	650 mm
MAB-AA-700-N	700 mm
MAB-AA-750-N	750 mm

MAB-AA-800-N	800 mm
MAB-AA-850-N	850 mm
MAB-AA-900-N	900 mm
MAB-AA-950-N	950 mm
MAB-AA-1000-N	1000 mm
MAB-AA-1100-N	1100 mm
MAB-AA-1200-N	1200 mm
MAB-AA-1250-N	1250 mm
MAB-AA-1300-N	1300 mm
MAB-AA-1400-N	1400 mm
MAB-AA-1500-N	1500 mm
MAB-AA-1750-N	1750 mm
MAB-AA-2000-N	2000 mm
MAB-AA-2250-N	2250 mm
MAB-AA-2500-N	2500 mm
MAB-AA-2750-N	2750 mm
MAB-AA-3000-N	3000 mm
MAB-AA-3250-N	3250 mm
MAB-AA-3500-N	3500 mm
MAB-AA-3750-N	3750 mm
MAB-AA-4000-N	4000 mm

Options with additional charge on base model

0...10 V output:

P	position and speed
Y	2 x position (for 2 magnets)

4...20 mA output:

E	position
F	position and speed
H	2 x position (for 2 magnets)

CANopen output:

C	50 to 550 mm measurement range
C	600 to 4000 mm measurement range

SSI output:

S	50 to 550 mm measurement range
S	600 to 4000 mm measurement range

Accessories

PCUR068	floating magnetic cursor
PCUR045	sliding magnetic cursor, middle axial joint
PCUR046	sliding magnetic cursor, high axial joint
PCUR047	sliding magnetic cursor, angle joint
PKIT091	set of brackets (2 pieces)

Cable for analog output, 5 pole, shielded, connector M12

K5P2M-S-M12	2 m, connector, straight
K5P5M-S-M12	5 m, connector, straight
K5P10M-S-M12	10 m, connector, straight
K5P2M-SW-M12	2 m, connector, angular
K5P5M-SW-M12	5 m, connector, angular
K5P10M-SW-M12	10 m, connector, angular

Cable for CANopen output, 5 pole, shielded, PUR

K5P2M-B-M12-CAN	female connector M12, straight, open cable head
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Connector SSI output

CON022	connector, 6 pole, M16, straight, IP67
CON023	connector, 6 pole, M16, angular, IP67

Connector analog output, CANopen output

D5-G-M12-S	connector 5 pole, M12, straight, IP67
D5-W-M12-S	connector 5 pole, M12, angular, IP67

Subject to change without prior notice.

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