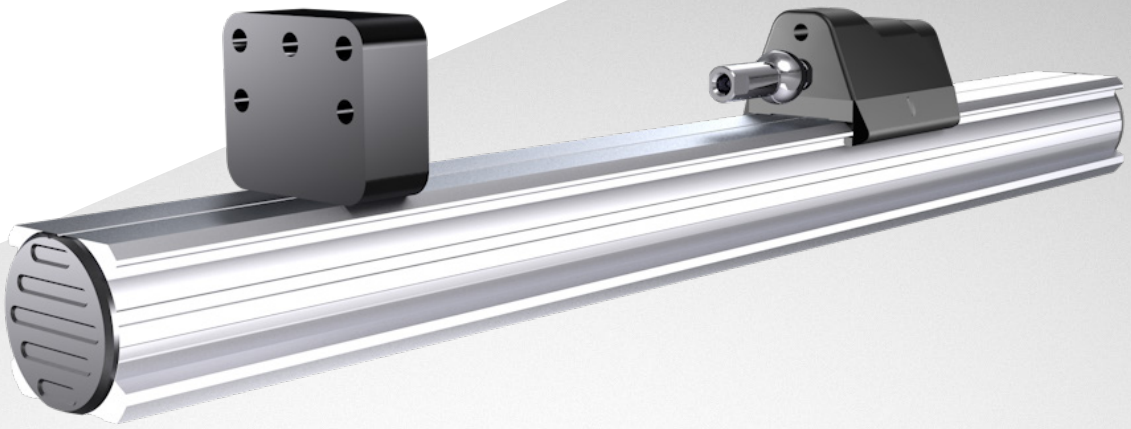
MAGNETOSTRICTIVE TRANSDUCER

Links to further documents for this series:
Installation guide



MAB SERIES

Key-Features:
- *Measurement ranges from 50 to 2500 mm*
- *Distance and speed measurement*
- *Sliding or floating magnetic cursor*
- *Displacement speed up to 10 m/s*
- *Linearity up to ±0.01 %*
- *Operating temperature -30...+90 °C*
- *Protection class IP67*
- *Output signals: Analog, SSI*

Content

TECHNICAL DATA

		MAB-A		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		
Measured dimension		position / speed		position
Linearity sliding magnetic cursor	[%]	±0.01 (min. ±0.06 mm)		
Linearity floating magnetic cursor	[%]	±0.02 (at a distance of 2...5 mm) ±0.04 (at a distance of 5...7 mm)		±0.02 (min. ±0.06 mm) [1]
Resolution		16 bit (noise max. 5 mVpp)		5 µm (2 µm on request)
Repeatability	[mm]	<0.01		
Hysteresis		<0.01 mm		≤±0.005 % (min. 0.01 mm)
Sampling time position (table below)	[ms]	0.5 to 2		1 to 4
Measurement range speed		min. 0...0.1 m/s, max. 0...10 m/s		-
Accuracy of speed output	[%]	<2		-
Displacement speed	[m/s]	≤10		
Acceleration max.	[m/s²]	≤100		
Output signal		0...10 V	4...20 mA	SSI: Binary/Gray, 24/25 bit
Output value max.		12 V	30 mA	-
Current consumption max.	[mA]	70	90	50
Output load max.		5 kΩ	<0.5 kΩ	RS422/485 standard
Power supply	[VDC]	24 ±20 %		10...32
Protection against polarity inversion		yes		
Protection against overvoltage		yes		
Operating temperature	[°C]	-30...+75		-30...+90
Storage temperature	[°C]	-40...+100		
Temperature coefficient		≤0.005 %/°C		20 ppm/°C
Protection class		IP67		
Shock resistance acc. DIN IEC68T2-27		100 g - 11 ms - single shock		
Vibration resistance acc. DIN IEC68T2-6		12 g / 10...2000 Hz		15 g / 10...2000 Hz
Electrical connection		connector M12		connector M16
Housing material		anodised aluminium, Nylon 66 G 25		

[1] depends on distance between cursor and sensor

SAMPLING TIME AND DIMENSIONS

MAB-A

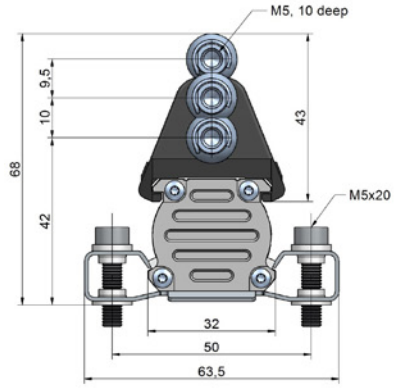
Measurement range	[mm]	up to 300	350 to 1100	1200 to 2000	2250 to 2500
Sampling time	[ms]	0.5	1	1.5	2
Overall housing length A	[mm]	measurement range + 154			

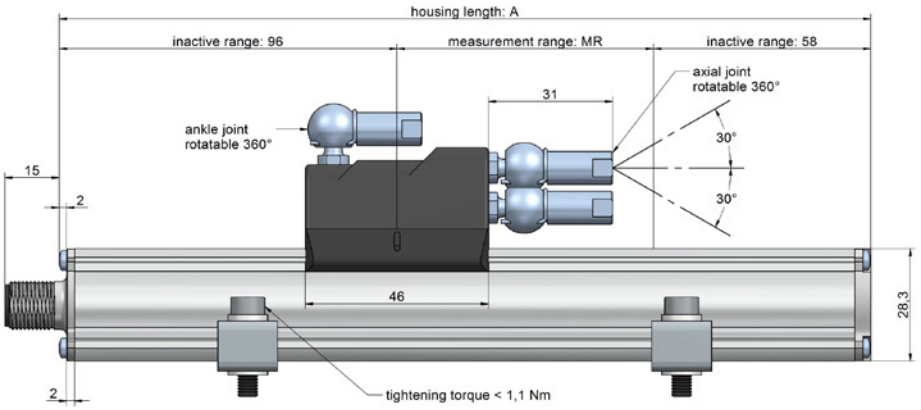
MAB-S

Measurement range	[mm]	up to 1100	1200 to 2000	2250 to 2500
Sampling time	[ms]	1	2	4
Overall housing length A	[mm]	measurement range + 154		

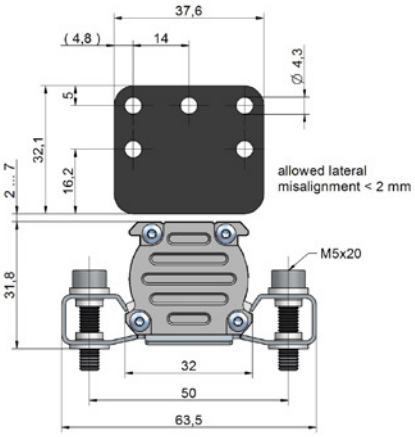
TECHNICAL DRAWING

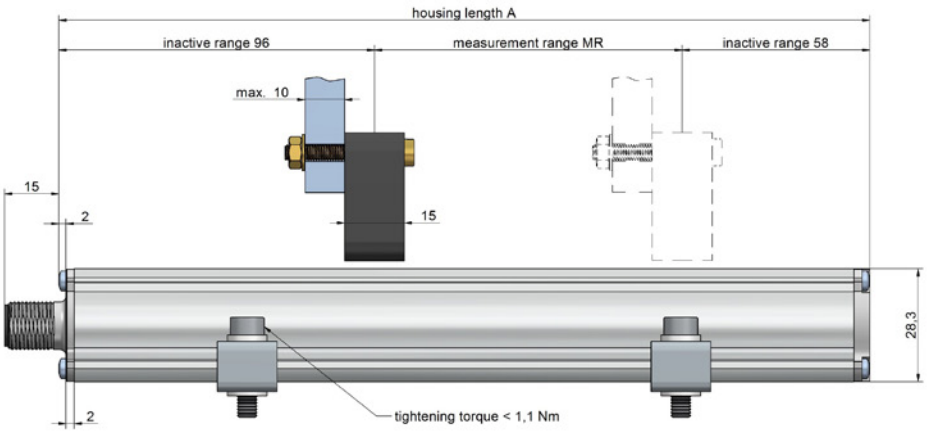
MAB, sliding magnetic cursor



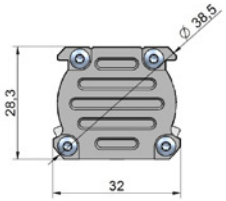


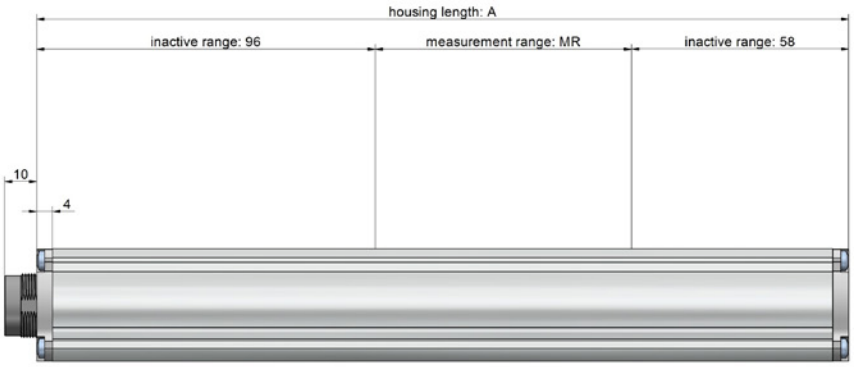
MAB, floating magnetic cursor





MAB-S

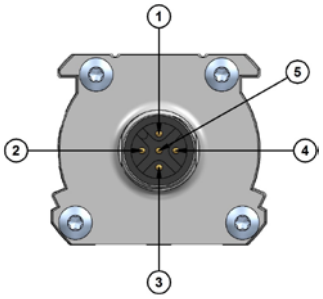




ELECTRICAL CONNECTION

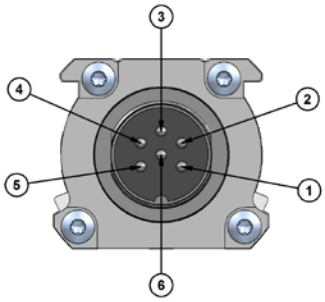
MAB-A

Function	Pin
Output 1: 0...10 V, 4...20 mA	1
Output 1 and 2: GND	2
Output 2: 10...0 V, 20...4 mA	3
Supply GND	4
Supply +	5



MAB-S

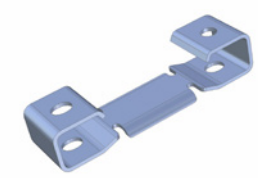
Function	Pin
Data -	1
Data +	2
Clock +	3
Clock -	4
Supply +	5
Supply GND	6



ACCESSORIES

Brackets (not included in delivery!)
1 set includes 2 brackets. We recommend to use 1 set for each third of the measurement range.

Type: PKIT091
Material: stainless steel
Overall length: 63.5 mm
Distance between mounting holes: 50 mm
Mounting screws: M5

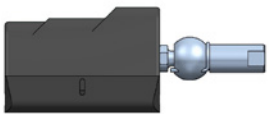


Magnetic cursors (not included in delivery!)

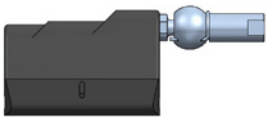
Position magnets	Description
PCUR210	standard version; guided sliding, axial joint, low
PCUR211	guided sliding, axial joint, high
PCUR212	guided sliding, angled joint
PCUR202	unguided floating

The adjustment has to be done 2...7 mm above the MAB-profile. Allowed lateral deviation ±2 mm. Installation only on a support made of non-magnetic material.

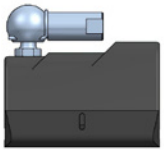
PCUR210



PCUR211



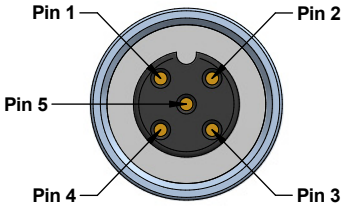
PCUR212



PCUR202

Connection cable for analog output

Cable with mating connector M12, female, 5 pins, IP67	
K5PXM-S-M12	X m, straight connector, shielded
K5PXM-SW-M12	X m, angular connector, shielded



Pin	cable colour
1	BN
2	WH
3	BU
4	BK
5	GY

ORDER CODE ANALOG OUTPUT

MAB – □ – □ – □ – □ – □

Output type Analog output	A
Connection Connector M12, 5 pins	A
Measurement range [mm] see „Technical Data“	e. g. 50

00.0	**Speed output** maximum measurable speed 0.1...10 m/s [specify in format 00.0]
	Output signal 0...10 V
N	position
P	position and speed
Y	2 x position (for 2 cursors, MR >360)
	Output signal 4...20 mA
E	position
F	position and speed
H	2 x position (for 2 cursors, MR >360)

Note: Magnetic cursors and brackets must be ordered separately!

ORDER CODE DIGITAL ABSOLUTE SSI

MAB – □ – □ – □ – □ – □

Output type Digital absolute SSI	S
Connection Connector M16, 6 pins	B
Measurement range [mm] see „Technical Data“	e. g. 50

	Data length
3	24 Bit
4	25 Bit
	Output code
B	Binary
G	Gray

Note: Magnetic cursors and brackets must be ordered separately!

ACCESSORIES

Magnetic cursors	
PCUR210	guided sliding, axial joint, low
PCUR211	guided sliding, axial joint, high
PCUR212	guided sliding, angled joint
PCUR202	unguided floating

Mounting set	
PKIT091	Brackets (2 pieces)

Cable with mating connector M12 (female) for analog output	
K5P2M-S-M12	2 m, straight connector, 5 pins, shielded
K5P5M-S-M12	5 m, straight connector, 5 pins, shielded
K5P10M-S-M12	10 m, straight connector, 5 pins, shielded
K5P2M-SW-M12	2 m, angular connector, 5 pins, shielded
K5P5M-SW-M12	5 m, angular connector, 5 pins, shielded
K5P10M-SW-M12	10 m, angular connector, 5 pins, shielded

Connector (female) for self assembly	
D5-G-M12-S	straight connector M12, 5 pins, IP67
D5-W-M12-S	angular connector M12, 5 pins, IP67

Connector (female) for self assembly	
CON022	straight connector M16, 6 pins, IP67
CON023	angular connector M16, 6 pins, IP67

Digital displays for sensors with analog output, 2 channel	
WAY-AX-S	touch screen, supply: 18...30 VDC
WAY-AX-AC	touch screen, supply: 115...230 VAC

For more information and options please refer to the WAY-AX data sheet.

Digital displays for sensors with SSI output, 2 channel	
WAY-SX-S	touch screen, supply: 18...30 VDC
WAY-SX-AC	touch screen, supply: 115...230 VAC

For more information and options please refer to the WAY-SX data sheet.

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