



**MAGNETOSTRICTIVE
TRANSDUCERS**

Powerful sensors to meet growing demands

Magnetostrictive Transducer MAB / MAP



Features

- ▶ Measurement range of 50 to 2500 mm
- ▶ Linearity up to $\pm 0.01\%$
- ▶ Resolution up to $5\ \mu\text{m}$
- ▶ Repeatability $< 0.01\ \text{mm}$
- ▶ Displacement speed up to $10\ \text{m/s}$
- ▶ Output: analog, CANopen, SSI
- ▶ Protection class IP67
- ▶ Operating temperature $-30\ \dots +90\ ^\circ\text{C}$
- ▶ Contactless measurement
- ▶ Sliding or floating magnetic cursor

Description

The MAB and MAP series magnetostrictive transducer sensors consist of two components. The profile, which also contains the electronics, is bolted to a fixed surface. The position magnet, available in a sliding or free-floating style, is secured to the moving measurement object. This contactless, wear-free measuring method will accurately reflect distances with minimal effort.

Technical Data

SERIES ▶ CHARACTERISTICS ▼	MAB	MAP
Measurement range max.	2500 mm	1500 mm
Linearity max. ¹⁾	$\pm 0.01\%$	$\leq \pm 0.04\%$ (min. $\pm 0.09\ \text{mm}$)
Resolution max.	$5\ \mu\text{m}$	limited by noise
Repeatability	$< 0.01\ \text{mm}$	
Displacement speed	$\leq 10\ \text{m/s}$	
Output analog	0...10 V, 4...20 mA	0.1...10.1 V, 4...20 mA
Output digital	CANopen, SSI	-
Protection class max.	IP67	IP65
Operating temperature	$-30\ \dots +90\ ^\circ\text{C}$	$-20\ \dots +75\ ^\circ\text{C}$
Housing material	anodised Aluminium	
Measured dimension	position, speed	position

¹⁾ based on the measurement range

Magnetostrictive Transducer MAZ / MSB



Features

- ▶ Measurement range of 50 to 4000 mm
- ▶ Linearity up to $\pm 0.02\%$
- ▶ Resolution up to $5\ \mu\text{m}$
- ▶ Repeatability $< 0.01\ \text{mm}$
- ▶ Displacement speed up to $10\ \text{m/s}$
- ▶ Output: analog, CANopen, SSI, RS422
- ▶ Protection class IP67
- ▶ Operating temperature $-30\ \dots +90\ \text{°C}$
- ▶ Operating pressure up to $350\ \text{bar}$
- ▶ Contactless measurement
- ▶ Different ring magnets or floating cursor for liquids

Description

The magnetostrictive measuring principle is particularly suited for determining the position of the piston in small and medium sized hydraulic cylinders. The plug-in or threaded flange sensors are mounted all the way in the cylinder for this purpose. MAZ and MSB sensors are further used to measure container fill levels. A special float style magnet provides a reliable measurement of the fluid level.

Technical Data

SERIES ► CHARACTERISTICS ▼	MAZ	MSB
Measurement range max.	2500 mm	4000 mm
Linearity max. ¹⁾	$\leq \pm 0.02\%$ (min. $\pm 0.06\ \text{mm}$)	
Resolution max.	$5\ \mu\text{m}$	$10\ \mu\text{m}$
Repeatability	$< 0.01\ \text{mm}$	
Displacement speed	$\leq 10\ \text{m/s}$	
Output analog	$0\ \dots 10\ \text{V}$, $4\ \dots 20\ \text{mA}$	$0.1\ \dots 5.1\ \text{V}$, $0.1\ \dots 10.1\ \text{V}$, $4\ \dots 20\ \text{mA}$
Output digital	CANopen, SSI	RS422
Protection class max.	IP67	
Operating temperature	$-30\ \dots +90\ \text{°C}$	
Housing material	stainless steel	
Measured dimension	position, speed	position
Operating pressure max.	$350\ \text{bar}$	

¹⁾ based on the measurement range

Product Overview



Draw Wire Sensors

- ▶ Ranges 50 mm - 42,5 m
- ▶ Linearity up to $\pm 0.02\%$
- ▶ Resolution up to $\pm 0.02\%$
- ▶ Output: potentiometric, analog, digital incremental, digital absolute, Bus



Laser Sensors

- ▶ Ranges 0.5 mm - 500 m
- ▶ Linearity up to $\pm 1\ \mu\text{m}$
- ▶ Resolution up to 0.2 μm
- ▶ Triangulation or optical phase comparison



Linear Potentiometers

- ▶ Ranges 10 mm - 2000 mm
- ▶ Linearity up to $\pm 0.05\%$
- ▶ Output: potentiometric, analog
- ▶ Protection class up to IP67



Magnetic Scales

- ▶ Ranges up to 99.99 m
- ▶ Linearity up to $\pm 2\ \mu\text{m}$
- ▶ Resolution up to 0.5 μm
- ▶ Output: analog, TTL, HTL, SSI, BiSS, 1 Vpp, tachometer



Digital Length Gauges

- ▶ Ranges 12 mm - 30 m
- ▶ Linearity up to $\pm 0.2\ \mu\text{m}$
- ▶ Output: TTL, HTL
- ▶ Protection class up to IP64



Ultrasonic Sensors

- ▶ Ranges 100 mm - 6000 mm
- ▶ Linearity up to $\pm 0.3\%$
- ▶ Resolution up to 0.125 mm
- ▶ Output: analog, proximity switch



Magnetostrictive Transducers

- ▶ Ranges 50 mm - 4000 mm
- ▶ Linearity up to $\pm 0.02\%$
- ▶ Resolution up to 2 μm
- ▶ Output: analog, SSI, CANopen, tachometer



Digital Linear Scales

- ▶ Ranges 150 mm - 2000 mm
- ▶ Linearity up to $\pm 0.5\ \mu\text{m}$
- ▶ Resolution up to 5 μm
- ▶ Output: TTL, HTL



Capacitive Sensors

- ▶ Ranges 50 mm - 42,5 m
- ▶ Linearity up to $\pm 0.2\%$
- ▶ Resolution dynamic up to 0.01 μm
- ▶ Output: analog



Encoders/Rotary Transducers

- ▶ Single- and Multiturn
- ▶ Analog Multiturn up to 120 turns
- ▶ Solid-, hollow- and through hollow shaft
- ▶ Output: analog, digital incremental, digital absolute