

GWM 50/7600 A

Magnetostrictive displacement transducer



This sensor uses the physical principle of magnetostriction with high-precision, reproducible contactless position measurement. The key component of the displacement transducer is the ferromagnetic measuring element – the waveguide. The movable position magnet generates a longitudinal magnetic field in the waveguide. When a current pulse passes through the wave-guide, a second magnetic field is created radially around the waveguide. The convergence of the two magnetic fields produces a strain pulse that travels at a constant ultrasonic speed in the form of an acoustic wave from its point of origin – the measurement point – to the ends of the waveguide. It is transformed in the sensor element into an electric pulse that is processed by the evaluation electronics and turned into an analogue signal for automatic recording.

TECHNICAL DATA

Material		Accuracy	
Sensor head:	Aluminium	Position measurement:	
Sensor stroke:	Aluminium	- Null/Span adjustment:	100 % of electrical stroke (min. range 25 mm)
Rod with flange:	Stainless steel 1.4301 / AISI 304	- Resolution:	16 bit; 0.0015 % (Minimum 1 µm)
Pressure rating:	350 bar, 700 bar peak	- Linearity:	< ± 0.01 % F.S. (Minimum ± 50 µm)
		- Repeatability:	< ± 0.001 % F.S. (Minimum ± 1 µm)
		- Hysteresis:	< 4 µm
Input			
Variable:	Displacement, speed/ 2-way positioning	- Update time:	0.5 ms up to 1200 mm / 1.0 ms up to 2400 mm 2.0 ms up to 4800 mm / 5.0 ms up to 7600 mm stroke length
Measuring length profile:	50 - 5000 mm	Speed measurement	
Measuring length rod:	50 - 7600 mm	- Range:	0.025 - 10 m/s
		- Deviation:	< 0.5 %
		- Resolution:	0.1 mm/s Option 0.01 mm/s
		- Update time (ms):	see position measurement
Output		Temperature coefficient	< 30 ppm/°C
Voltage:	0.1-4.9 V		
Burden:	> 10 kΩ	Operating conditions	
Electrical connection		Operating temperature:	-40 °C ... +75 °C
Connection type:	6 pin connector M16 or cable outlet Attention: the profile sensor has to be grounded by the flat pin plug on sensor head.	Dew point, humidity:	90% rel. humidity, no condensation
Current drain:	100 mA typical	Protection	
		- Profile:	IP 65
		- Rod:	IP 68 for cable outlet
		- RS:	IP 69K
		Shock test:	100 g single hit, IEC-Standard 68-2-27
		Vibration test:	15 g / 10 - 2000 Hz, IEC-Standard 68-2-6