

## **Robust, durable and precise - displacement measurement from MEGATRON**

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### **Proven displacement motion detection with the IMS magnetostrictive sensor**

The Megatron IMS magnetostrictive displacement sensor range uses magnetic ring magnets as position encoders and this contactless, ultra-precise measuring principle guarantees a long service life. The specially protected design makes it possible to use this instrument even in harsh conditions.

With IMS displacement sensors, the linear motion is mechanically detected by an annular position sensor, in which magnets are cast. The magnetostrictive sensor element and the electronic runtime measuring instrument are integrated in the sensor housing, consisting of a measuring tube and flange head. The position of the magnetic encoder is updated 1,000 times per second and is issued as a linear analog signal typically as 0.1..10.1 V or 4..20 mA.

The signal is absolute, i.e. position feedback is immediately available even after the instrument has been switched off and on.

The magnetostrictive measuring principle is contactless, is therefore wear-free enabling a correspondingly long service life. It is tolerant of horizontal and lateral displacement of the position encoder (up to  $\pm 2.5$  mm) and can also be used in applications where there can also be rotational motion during the linear motion. The instrument offers a wide range of measuring distances, ranging from 50 mm to 4,000 mm. The outstanding precision of the IMS results from its excellent linearity (up to 0.02% FS) and good resolution (up to  $\pm 10$  microns).

A closed and sealed sensor housing, rated protection class IP67, protects the electronics with the magnetostrictive displacement element. This sealed design enables the IMS to be used even in the toughest ambient conditions. The displacement sensor is also insensitive to shocks and vibrations and can withstand temperatures from  $-30^{\circ}\text{C}$  to  $90^{\circ}\text{C}$ . The output signal has low sensitivity to temperature with only 0.005% FS/K.

A threaded external flange version is provided as well as an internal flange version to be completely integrated in a hydraulic cylinder, both used for hydraulic applications (up to 350 bar static). The space-saving design and thus ease of integration is further enhanced by there being no need for a push rod.