

# Temposonics®



Magnetostrictive, Absolute, Non-contact  
Linear-Position Sensors

Document Part Number  
551244 Revision A

## The New E-Series



*The Measurable Difference*



**SENSORS**

## **Temposonics® E-Series Sensors**

... are the right choice whenever basic measuring tasks are the focus. In price-sensitive applications, such as plastics processing, textile industry, woodworking or in handling and packaging machines, they have been the economic alternative to wear-prone position measuring systems for years. They are an economic solution not only due to the initial purchasing price but also with regards to the overall life cycle costs!



E-Series sensors provide continuous, non-contact position feedback ensuring an optimum price-performance ratio when a reliable and cost-effective solution is needed. Therefore, magnetostrictive displacement measurement can be used economically in standard applications where the highest performance is not necessary.

## **E<sup>2</sup> - Effective and Efficient**

Now MTS has developed the next generation E-Series sensors. They are a landmark for cost-effective and efficient sensor use. With the E-Series you get exactly as much performance as you need for your application - no more and no less. So you can benefit from the advantages of magnetostrictive position measurement at optimum costs. Like all Temposonics® sensors, the E-Series transducers measure with absolute position, non-contact and work wear-free without recalibration for years.

Naturally, all new models provide backward compatibility with the previous versions of the E-Series. All dimensions of the sensors either remained the same or were minimized. The connectivity has been updated to standard M12 connectors available at reasonable prices. For M16 connection retrofits, adapter cables are available as an accessory.

## **Highlights of the New Series**

The redesign of the entire Temposonics® E-Series product family incorporates the latest advances in magnetostrictive technology. All models have received a complete mechanical redesign and the latest electronics with a focus on consistent performance features. As a result of advancements in waveguide technology and enhanced sealing of the electronics, all E-Series sensors can now reliably achieve a minimum protection class of IP67, 100 g shock and 10 g vibration resistance.

The new E-Series sensors are now available with defined stroke lengths from 50 mm up to 2540 mm (2 to 100 inches) featuring analog interface or digital Start/Stop output. For further reduction in cost and space, the analog models are capable of reporting two positions simultaneously when using two position magnets.

All E-Series sensors offer a good resolution and repeatability of 0.01 mm and only 0.03 % F.S. linearity deviation. If higher precision is required, advanced sensor models such as the R-Series are available in the Temposonics® product line.

## **At A Glance**

- New E-Series models: rod style (EH) for use in hydraulic cylinders and low height profile (EL) for lower installed clearance.
- Very compact dimensions
- Outputs: Current, Voltage, Start/Stop
- Measuring range from 50 mm up to 2540 mm (2 to 100 inches)
- M12 connector: cost-effective connection with prefabricated cables
- Measurement of 2 positions with 1 analog sensor
- High protection class up to IP69K
- Position magnet moves over the electronic head (EP)

### ***EH - Rod Sensor up to IP69K***

The new Temposonics® Model EH sensor features a pressure proof sensor rod for direct stroke measurement inside hydraulic cylinders. With its minimized sensor head and either a 7 mm or 10 mm rod, it is the ideal solution when space is critical. For long strokes, the EH is now available with measuring ranges up to 2540 mm (100 inches).



The new sealed stainless steel housing of the EH offers long life position measurement for rugged environments. Installed with the appropriate connector, it features protection up to IP69K and is suitable for high pressure washdown applications.

### ***ER - Rod-and-Cylinder Sensor***

The Temposonics® Model ER sensor - shaped like an aluminium cylinder with a guided driving rod - is well suited for easy mounting to the machine. It can be installed in any orientation for measuring lengths of up to 1500 mm (60 inches). The position detection is via the driving rod, which holds the position magnet and extends or retracts into the housing.



Due to the enhanced sealing of the sensor electronics and the sensing element inside the housing, the new ER offers a protection rating of IP67 and is ideally suited for long-term operation in the world of automation.

### ***EP - Profile Sensor***

The Temposonics® Model EP profile sensor with rugged aluminium housing provides reliable service in the harsh environment of industrial applications. Mounted in parallel to the moving axis, it detects positions either via a magnet slider, which moves over the profile bar, or with a free running open-ring or block magnet.



When using the block magnet, the new EP allows the magnet to float over the sensor's electronic head. This is perfect if the movement axis is longer than the measuring range.

### ***EL - Low Profile Sensor***

The brand new sensor of the E-Series, the Temposonics® Model EL, includes a low profile aluminium housing. The slim low-profile version has specially been developed for applications where tight mounting space is a critical determining factor.



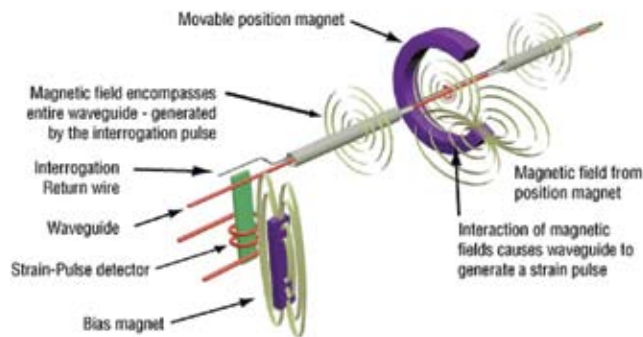
With a housing height of only 25 mm (1 inch) at the head and 15 mm (0.6 inch) along the measuring range, it fits the tightest areas.

## Wear-free Measuring Principle

The major advantage of all Temposonics® sensors is their magnetostrictive measuring principle. They detect positions via magneto-mechanical effects, which means completely without contact and wear.

The sensing element is embedded inside the sensor housing. The sensor head accommodates the complete electronics for active signal processing. A free running or guided magnet moves without contact over the sensor housing and marks the current position through its wall.

To determine the position, the sensor electronics send an electric pulse through the sensing element. In the area of the position magnet, a partial twist of the sensing element generates a torsional wave, which travels as a strain pulse to the ends of the sensing element. A special signal converter converts the strain pulse into standard output signals. Exact determination of the magnet position is achieved by runtime measurement, by the time elapsed between the start of the current pulse and the return of the strain pulse signal.



Document Part Number: 551244, Revision A 10-10

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