

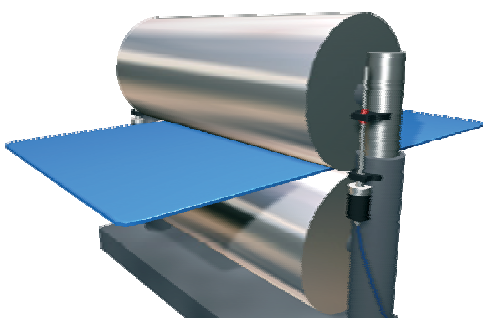


## Linear inductive displacement and position sensors

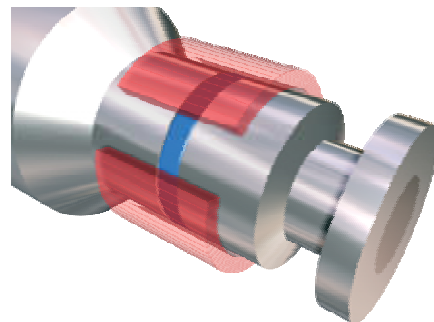
Electromagnetic displacement sensors are used extensively in applications for automated processes, quality assurance, test rigs, hydraulics, pneumatic cylinders, and automotive engineering. The advantages of these displacement sensors are well known and highly valued, and include ruggedness, reliability under harsh conditions, high signal quality and good temperature stability. The electromagnetic sensors of the induSENSOR series are based on the well-proven inductive and eddy current principle. They are used successfully both in single and high volume OEM applications.

### Advantages

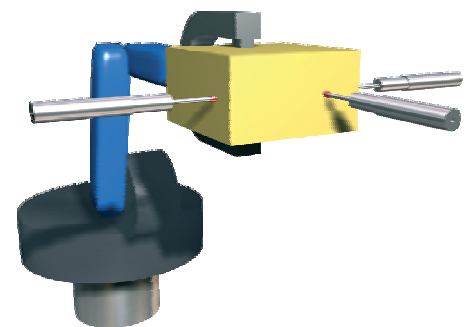
- More than 250 different models with measuring ranges from 1 - 630 mm
- Controller integrated or separate
- High accuracy classes
- Extreme stable and robust
- Different constructions with plunger, tube or measuring ring
- High temperature stability



In automated production plants, inductive sensors monitor the production tolerance of the products while the process is running.

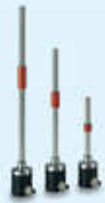
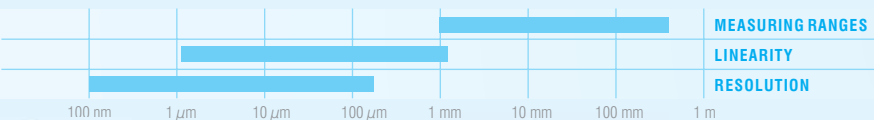


To monitor the clamping position of tools a sensor in the VIP series is integrated into the chuck and directly measures the clamping stroke of the drawbar.



Inductive gauging sensors measure the geometry of workpieces in quality assurance and production.

**Performance  
induSENSOR**



**induSENSOR series VIP**

Displacement sensors with integral electronics

Measuring ranges 50 - 150 mm

Linearity  $\leq 0.25\%$

Resolution 0.03 %

Measuring rate 300 Hz

Target measuring ring

**induSENSOR series LVP - DC**

Displacement sensors with integral electronics

Measuring ranges 50 - 200 mm

Linearity  $\leq 0.25\%$

Resolution 0.03 %

Measuring rate 300 Hz

Target plunger

**induSENSOR series EDS**

Displacement sensors with integral electronics

Measuring ranges 100 - 630 mm

Linearity  $\leq 0.3\%$

Resolution 0.05 %

Measuring rate 150 Hz

Target tube

Pressure resistance 450 bar



**induSENSOR series LVDT**

Gauging sensor with external electronics

Measuring ranges  $\pm 1 - \pm 10$  mm

Linearity  $\leq 0.15\%$

Target plunger with return spring

**induSENSOR series LVDT**

Displacement sensors with external electronics

Measuring ranges  $\pm 1 - \pm 25$  mm

Linearity  $\leq 0.15\%$

Target plunger

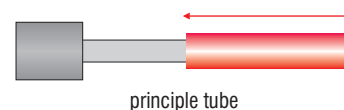
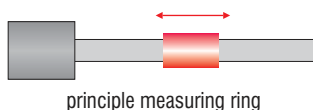
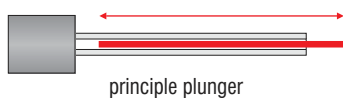
**induSENSOR series LIP**

Linear displacement sensors with external electronics of high temperature (up to 160°C)

Measuring ranges 10 - 50 mm

Linearity  $\leq 0.30\%$

Target plunger

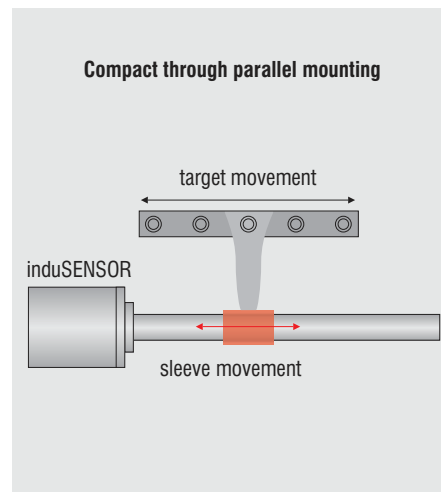


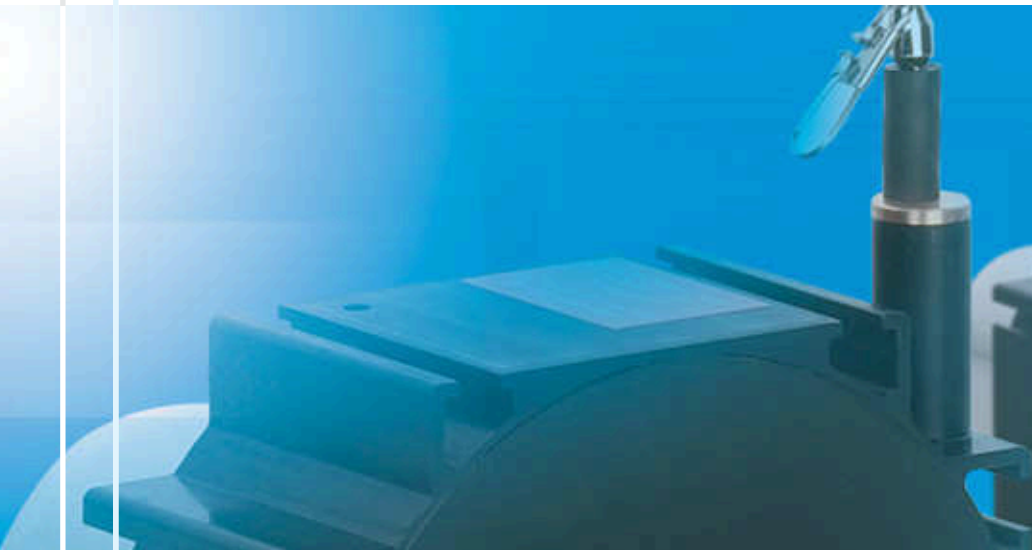
**Extended functionality**

The induSENSOR product group offers extended functions and properties as a substantial advantage compared to common inductive probes and sensors.

The various series differ from one another in construction, accuracy class and therefore also in the field of application. The sensors are designed with integral or external electronics and use a plunger, measuring sleeve and measuring tube as the target. As a result, new fields of application are opening up due to the versatile methods of installation. This becomes particularly noticeable with the VIP Series: The difference to common LVDT sensors is that with the VIP Series the measurement object is mounted parallel to the sensor. Parallel mounting is primarily suitable for confined installation spaces.

Through the concept of the short measuring sleeve, the sensors can be integrated to form a mechanical unit with dampers, valves, automatic screwdriving units, clutches or pedals.





## Draw-wire sensors for displacement, position and length

Draw-wire displacement and position sensors are essentially electronic tape measures and measure the linear movement of a component by means of a wire made of highly-flexible stainless steel strands, which is wound onto a drum by a long-life spring motor. The measuring drum is axially coupled with a multi-turn potentiometer, an incremental encoder, or an absolute encoder. With the draw-wire principle a linear movement is transformed into a rotary movement and then converted into a resistance change or into countable increments.

### Advantages

- Very accurate
- Long measuring ranges
- Robust and compact
- Easy installation and handling
- Compact design
- Excellent price/performance ratio



Draw-wire displacement sensors measure the lifting height on fork-lift trucks. You can acquire a lifting heights up to 30 m with this compact construction.

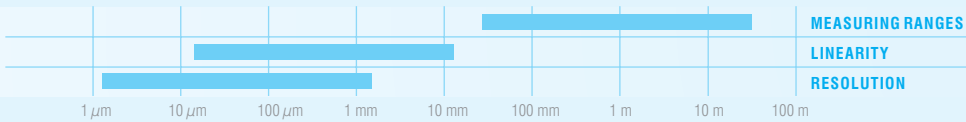


Miniature draw-wire sensors monitor the satellite release process from the Ariane booster rocket.



Draw-wire sensors monitor the height of lifting platforms on automobile production lines.

**Performance  
wireSENSOR**



**wireSENSOR MK30/MK46/MK77**

OEM miniature sensors

Measuring ranges 50 - 2100 mm

Analog output potentiometer

Digital output encoder



**wireSENSOR MPM**

Subminiature sensors

Measuring ranges 50 - 250 mm

Analog output potentiometer

Option with wire acceleration up to 100 g



**wireSENSOR MP/MPW**

Miniature sensors

Measuring ranges 100 - 1000 mm

Analog output potentiometer

Option with protection class IP 67



**wireSENSOR P60/P96**

Industrial sensors

Measuring ranges 100 - 3000 mm

Analog outputs potentiometer, voltage, current

Digital outputs HTL, TTL, SSI, PB, CO



**wireSENSOR P115**

Industrial sensors

Measuring ranges 3 - 15 m

Analog outputs potentiometer, voltage, current

Digital outputs HTL, TTL, SSI, PB, CO



**wireSENSOR P200**

Longrange sensors

Measuring ranges 30 - 50 m

Digital outputs HTL, TTL, SSI, PB, CO

**wireSENSOR mechanics**

The mechanic options P96, P115 and P200 series are designed for easy mounting of a customer specific encoder.

**Compact, dependable and economical**

The different sensor model ranges cover the complete application spectrum of draw-wire sensors. The miniature sensors are extremely favorably priced and are suitable for integration in tight installation spaces due to the miniaturized design. The industrial sensors are of extremely rugged construction and are employed in applications with large measurement ranges. A definite advantage of this draw-wire measuring principle is that the measuring cable can be diverted over deflection pulleys. This property differentiates draw-wire sensors from other measuring principles which can normally only measure on one axis.

The sensor housings are kept extremely compact. The well conceived sensor design enables large measurement ranges to be realized in a space-saving manner. Since only high quality components are used, the rugged sensors have an extremely long life - even in continuous use under industrial conditions.

