MICRO-EPSILON

More Precision

capaNCDT // Capacitive sensors for displacement, distance & gap

Sensor system for thickness measurement of plastics
combiSENSOR KSS6420

- One-sided thickness measurement in one axis
- Integrated temperature measurement
- Special plug for fast sensor connection
- Thickness measurement based on ε_r
- Determination of ε_r with known thickness
- Operation via web interface

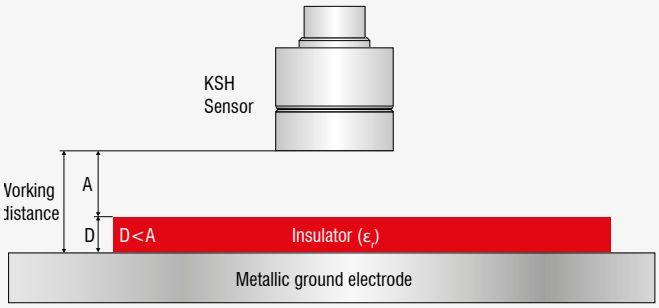
In its sensor housing, the combiSENSOR combines an eddy current displacement sensor and a capacitive displacement sensor. This unique sensor concept enables one-sided thickness measurement of electrically non-conductive materials on metallic objects. Its field of application is the absolute thickness measurement of plastic film or of plastic coating on metal plates.

The sensor is wired to the controller, which processes and calculates the signals in order to put them out via interfaces. Calculation of the two sensor signals provides compensation of mechanical changes such as thermal expansion, deflections or eccentricity in the measurement device. Due to the redundancy of this combined sensor principle, the measured thickness value remains extremely stable. Due to the high temperature stability, the combiSENSOR provides high measurement accuracy even with fluctuating temperatures.

Controller	KSS6420	KSS6430	KSS6420(01)	KSS6430(01)
Sensors	KSH5(01)		KSH10	
Measuring range, thickness (insulator)	40 µm ... 3 mm		40 µm ... 6 mm	
Working distance	2 mm ... 5 mm		4 mm ... 10 mm	
Resolution (100 Hz)	0.0018 % FSO	0.0004 % FSO	0.0030 % FSO	0.0006 % FSO
Bandwidth	analog: 1 kHz (3 dB), digital: 2.6 ... 3900 Sa/s (adjustable)			
Linearity	±0.05 % FSO			

Fields of application

- Non-contact thickness measurement of plastic films
- Non-contact thickness measurement of coated metals
- Measurement of the applied adhesive
- Lateral profile due to a traversing axis



Thickness measurement D
If the dielectric constant ε_r and the working distance from the ground electrode are known, the controller calculates the insulator thickness D from the sensor signals.

Calculation of the dielectric constant ε_r
If the thickness of the Insulator D and the working distance from the ground electrode are known, the controller calculates the dielectric constant of the insulator.

Measuring principle

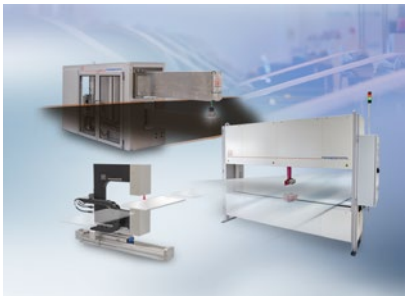
The eddy current coil and the capacitive measurement electrodes are designed concentrically. Both sensors measure against the same spot. The signal from the capacitive displacement sensor indicates the distance to the upper layer (e.g., insulator or electrode coating). At the same time, the eddy current sensor measures the distance to the lower layer (e.g., beneath a sheet of metal or a metal roller).

The controller outputs both single signals as well as the difference between capacitive sensor and eddy current sensor. If the thickness and working distance are known, the dielectric constant can also be calculated.

Sensors and Systems from Micro-Epsilon

Sensors and systems for displacement, distance and position

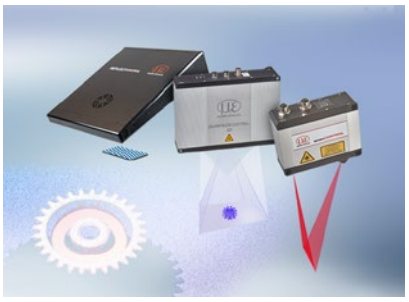
Sensors and measurement devices for non-contact temperature measurement



Measuring and inspection systems for metal strips, plastics and rubber

Optical micrometers and fiber optics, measuring and test amplifiers

Color recognition sensors, LED analyzers and inline color spectrometers



3D measurement technology for dimensional testing and surface inspection

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