



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. Connected to the sensor via a cable, the controller 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 unaffected by any changes in the measurement setup. Due to the high temperature stability, the combiSENSOR provides high measurement accuracy even with fluctuating temperatures.

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

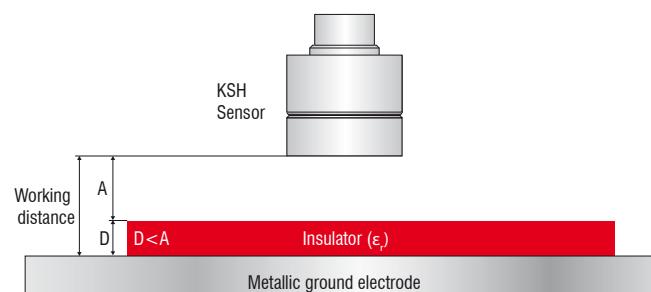


Web interface

The web interface for sensor and controller configuration opens via Ethernet.

Measuring principle

The construction of the eddy current measurement coil and the capacitive measurement electrodes is concentric. Both sensors measure against the same spot. The signal of the capacitive displacement sensor is a function of the working distance, the thickness of the insulator (D) and the dielectric constant of the insulator material (ϵ_r). At the same time the eddy current displacement sensor measures the distance to the ground electrode (e.g. metal sheet or metal roller positioned behind the film). The controller outputs both single signals as well as the difference between capacitive sensor and eddy current sensor. Also the dielectric constant can be calculated with known thickness and working distance.



Thickness measurement:

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:

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.