

combiSENSOR Non-Contact Displacement and Thickness Measurement

In its sensor housing the combiSENSOR combines an eddy current displacement sensor and a capacitive displacement sensor. The main field of application is the traversing thickness measurement of plastic film or of plastic coating on metal plates. Arithmetical coupling of the two sensor signals provides compensation of mechanical changes, e.g. thermal expansion, deflections or eccentricity in the measurement device. Through the redundancy of this combined sensor principle, the measured thickness value remains unaffected by any changes in the measurement setup.

Areas of use

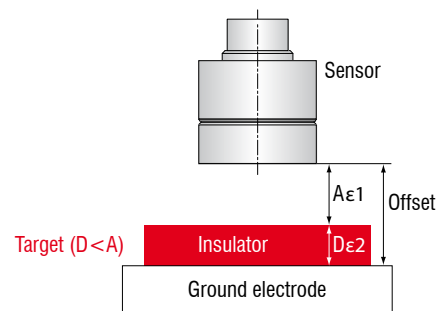
- Non-contact thickness measurement of plastic films
- Non-contact layer thickness measurement of insulator materials
- Lateral profile by using a traversing axis

Special benefits

- Thickness measurement in one axis
- Integrated temperature measurement
- Special plug for fast sensor connection

Measuring principle

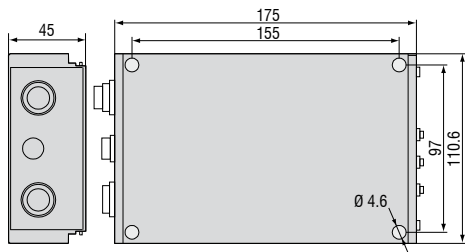
The construction of the measurement coil and measurement electrodes is concentric. Therefore both measure against the same spot. The signal of the capacitive displacement sensor is a function of the offset, the thickness of the insulator (D) and the permittivity ϵ_2 . At the same time the eddy current displacement sensor measures the distance to the ground electrode (e.g. flat sheet or to a metal roller positioned behind the film). The controller display both single signals as well as the difference between capacitive sensor and eddy current sensor.



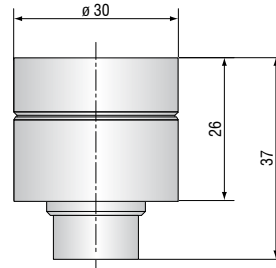
Technical data		KSS6380	
Measuring range	max. offset	5mm	
Linearity	±0.05%	±2.5µm	
Resolution		offset 2.5mm	offset 4.5mm
		0.32µm	0.62µm
Bandwidth		analog: 500Hz (3dB); digital: 1040, 520, 104, 26 Samples	
Temperature stability	Sensor (capacitive)	±50ppm/°C	
	Sensor (eddy current)	±50ppm/°C	
	Controller	max. 50ppm/°C	
Temperature range		controller +10...+60°C; sensor -10...+85°C; sensor cable -10...+125°C	
Output	Voltage	capacitive, eddy current and differential signal: 0-10V (max. 10mA short-circuit-proof); internal sensor temperature signal (not scaled)	
	Digital	Ethernet 24bit (capacitive, eddy current, differential and internal temperature signal (not scaled))	
Power supply		9-36V (@24V:0.25A)	
Protection class		IP 40	

combiSENSOR Dimensions and Accessories

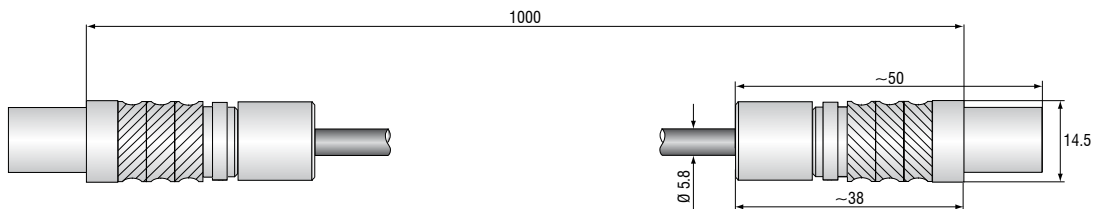
Controller



Sensor KSH5

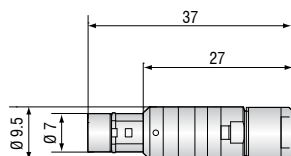


Sensor cable

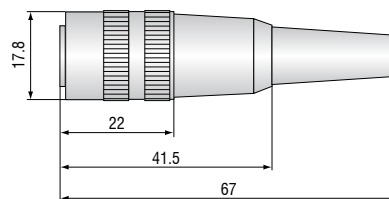


Connector

Signal output (5-pin connector)



Power supply (8-pin socket)



Dimensions in mm, not to scale

Scope of supply KSS6380:

- Sensor KSH5
- Sensor cable 1m
- Controller

Accessories

- PC3/8 supply cable (3m)
- SCAC3/5 signal output cable analog (3m)

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