RECHNER SENSORS

Dielelectric Constants



Material Sensing with KAS capacitive sensors

KAS capacitive sensors detect liquids, powders, or solid materials by measuring a change in capacitance. The amount of change in capacitance is dependent on the dielectric constant of the material being sensed. The larger the dielectric constant, the easier the material is to detect. This means that materials with a high dielectric constant can be detected at greater distances than materials with low dielectric constants. Also, materials with high dielectric constants can be detected through wall of containers made of material with a lower dielectric constant. For example, water (with a dielectric constant of 80) can be detected through a piece of glass (with a dielectric constant of 4 to 10).

Standard KAS capacitive sensors can detect materials with a dielectric constant of 1.2 or greater. Special capacitive sensors can even detect materials with a dielectric constant down to 1.1.

The best method to test whether your material can be detected is to physically test the material with a sensor. If this is not practical, consult a list of dielectric constants.

General guidelines:

- 1. Products with dielectric constants of 1.2 or greater can be detected.
- 2. The higher the dielectric constant, the easier the material is to detect.
- 3. Materials with high dielectric constants can be detected through a container wall with a low dielectric constant (less than 10).
- 4. Larger amounts of material and higher densities of material will be easier to detect than small amounts of material.
- 5. The best way to ensure reliable detection is to be in physical contact with the product.
- 6. Solid materials (like bottles) should be detected at a short distance.



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Air1.000264Mustard24Ammonia15Oat4.9Aniline7Oil2Benzene2.3Paper, Scraps1.2Cacao Beans1.8Paraffin1.6Carbon Dioxide1.000985Peanuts3.1Carbon Dioxide1.000985Peanuts3.1Carbon Tetrachloride2.3Phenol Resin7.4Chalk2.1Plastic Pellets1.2Charcoal1.3Polyamide1.7Chlorine Fluid2.1Polypropylene1.6Clay2.3Potato Starch1.7Coal Dust2.5Printing Ink4.6Coconut Oil2.9Rapesed3.3Cofee Beans1.5Rice3Coke3Rye6Corn3.6Salt6Corn Starch Syrup18.4Salt Water32Diesel Fuel2.1Soap Flakes9.2Dry Yeast2Soda3Ethanol16.2Styrene2.4Fatty Acid1.7Sulphur3.5Fertilizer4.3Sulphur3.5Fish Oil2.6Sunflower Seeds2Glass Granulate4 to 10Toothpaste18.3Glucose30Urea2.9Glue2.3Wax1.8Isopropanol1.8Wheat Starch2.5Marble Stones2.5Wood Chips2.5	Acetone	21.5	Molasses	31.3
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Fatty Acid1.7Sugar1.8Fertilizer4.3Sulphur3.5Fish Oil2.6Sunflower Seeds2Flour2.5Tea Powder2Gas2Toluene2.4Glass Granulate4 to 10Toothpaste18.3Glucose30Urea2.9Glue2Vinegar24Honey24Water80.3Hot Glue2.3Wax1.8Isopropanol18Wheat Starch2.5	Dry Yeast	2	Soda	3
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	Isopropanol	18	Wheat	4
Marble Stones2.5Wood Chips2.3	Ketchup	24	Wheat Starch	2.5
	Marble Stones	2.5	Wood Chips	2.3

