

CAPACITIVE PROXIMITY SENSORS

Let us now turn our attention to another proximity sensor, the capacitive proximity sensor. This sensor operates much like an inductive proximity sensor, but its means of sensing is much different.



FIGURE 62: CAPACITIVE PROXIMITY SENSOR

Capacitive proximity sensors are designed to detect both metallic and non-metallic targets. They are ideally suited for liquid level control and for sensing powdered or granulated material.

Strengths and Weaknesses

Consider these strengths and weaknesses of the capacitive proximity sensor:

Strengths	Weaknesses
<ul style="list-style-type: none"> • Can detect both metallic and non-metallic objects at greater ranges than inductive sensors • High switching rate for rapid response applications (counting) • Can detect liquid targets through non-metallic barriers (glass, plastic) • Long operation life, solid-state output for "bounce free" signals 	<ul style="list-style-type: none"> • Affected by varying temperature, humidity and moisture conditions • Not as accurate as inductive proximity sensors

Applications

Here are some examples showing how the detection power of capacitive proximity sensors is used:

- **Liquid level detection applications**, such as preventing overfilling or underfilling, are common in the packaging industry.
- **Material level control applications**, such as assuring that a sleeve of labels on a labeling line is not empty.
- **Counting applications**, such as tracking units passing a point on a conveyor.
- **Induction molding process**, detection of level of plastic pellets in feed hopper.