

SENSORS

Environment

Many of the same factors that affect inductive proximity sensors, also affect capacitive sensors, only more so.

- Embeddable mounting – capacitive sensors are generally treated as **non-shielded devices**, and therefore, **are not embeddable**.
- Flying chips – They are **more sensitive to both metallic and non-metallic chips** and residue.
- Adjacent sensors – **more space between devices is required** due to the greater, non-shielded sensing range.
- Target background – because of both the greater sensing range, and its ability to sense metallic and non-metallic materials, **greater care in applying these sensors is needed when background conditions are present**.
- Ambient atmosphere – the **amount of humidity in the air may cause a capacitive sensor to operate** even when no target is present.
- Welding magnetic fields – capacitive sensors **are generally not applied in a welding environment**.
- Radio Frequency Interference (RFI) – In the same way that inductive proximity sensors are affected, **RFI interferes with capacitive sensor circuitry**.
- Showering arc (EFT) – **induced electrical noise affects these sensors** in the same way it does for an inductive sensor.

IN THE WORKPLACE

On the fill line at Bud Springs Natural Water, five gallon plastic bottles pass along beneath a fill nozzle.

As water fills each bottle, a capacitive proximity sensor detects when the water reaches the specified level.

As the sensor is more sensitive to water than it is to plastic, the sensor can "see through" the bottle wall.



FIGURE 67: A CAPACITIVE PROXIMITY SENSOR "SEES THROUGH" A WALL TO FIND THE TARGET