

OPERATION OF THE CAPACITIVE PROXIMITY SENSOR (CONTINUED)

As an object approaches the sensor, the **dielectric constant of the capacitor changes**. The oscillator circuit's **oscillation begins when feedback capacitance is detected**. This is just the opposite in the inductive proximity sensor, where the oscillation is damped when the target is present.



FIGURE 65: OSCILLATOR DAMPING

The **detector circuit** monitors the oscillator's output. When it detects sufficient change in the field, it switches on the output circuit.

The **output circuit** remains active until the target leaves the sensing field. The oscillator responds with a decrease in amplitude, and when it is no longer receiving sufficient capacitance feedback, the detector circuit switches OFF. The output returns to its normal state.

There is a built-in **difference between the operate and release amplitudes to provide hysteresis**.

IN THE WORKPLACE

As oil pours into this storage tank, a capacitive proximity sensor near the top signals the fill valve to close once the tank reaches capacity.

Another sensor near the bottom alerts the filling system if the level of the tank becomes too low.



FIGURE 66: CAPACITIVE PROXIMITY SENSORS IN A LIQUID LEVEL DETECTION APPLICATION