

## HOW AN INDUCTIVE PROXIMITY SENSOR OPERATES

Inductive proximity sensors produce an oscillating and invisible radio frequency (RF) field at the sensor face. When metal objects are brought into this field, this oscillating field is affected. Each type and size of sensor has a specific sensing range switch point so that metal target detection is very accurate and repeatable.

The presence of a metallic target interrupts the field and alters (by *damping*) the current in the sensor coil (*eddy current* kill) causing the detector circuit to sense the change. The sensor then triggers an output to a connected device.

### Components

Lets look at the components and the process step-by-step:

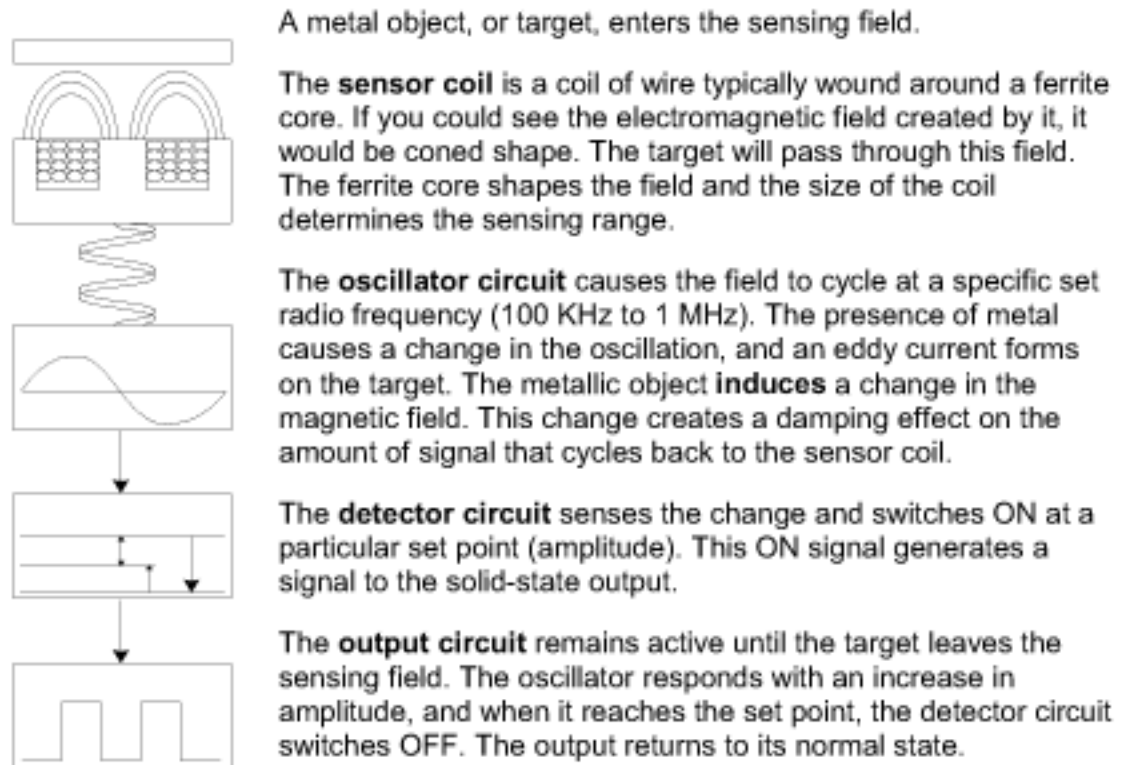


FIGURE 41: COMPONENTS

### Hysteresis

*Hysteresis* is an engineered-in difference between the ON and OFF points.

If they were exactly the same point, there would be a chattering — a very rapid on-off-on-off cycle. That would cause a lot of needless stress on components activated by the circuit.

With hysteresis, the *operate point* and the *release point* are slightly different distances from the sensor face.

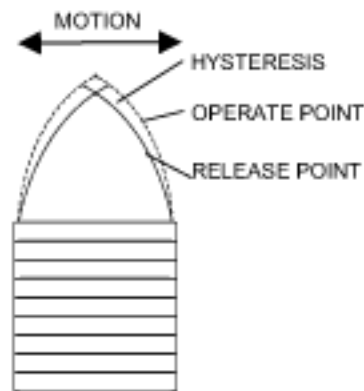


FIGURE 42: HYSTERESIS