

Foreground Suppression

Photoelectric proximity sensors, even those with true background suppression, can have difficulty detecting objects with shiny or irregular surfaces. These types of objects can reflect the light emitted from the sensor in many different directions. This can cause false readings. The sensor with "foreground suppression," a SICK exclusive, solves this problem by not detecting the object directly. Instead the sensor detects the object by the lack of light being reflected by the background.

The same multiple receiver system used in background suppression is used in foreground suppression (Fig. 1). The difference is that the sensor is set so that it can "see" the background, but an object close to the sensor is not detected. The background is used as a reflector by the sensor, and anything that passes between sensor and background is detected because it blocks the reflection from the background. This means that even objects which are shiny or have irregular surfaces can be reliably detected in cases where an actual reflector cannot be used.

Sensors with foreground suppression also have graphed curves to detail their capabilities. In the curve shown in Fig. 2, taken from the WT 12-2, the worst case is a white (90% reflectance) object on a black (6% reflectance) background. At a distance of 50 mm (1.97 in) the curve shows a foreground suppression of about -2%. This means that at 50 mm the black background must be at least 2% of 50 mm, or 1 mm (0.039 in) behind the white object (Fig. 3).

Foreground suppression is available in the **W.12-2** series as well as the DS 60.

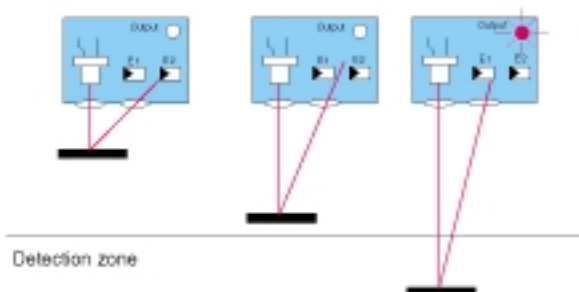


Fig. 1 Foreground suppression principle

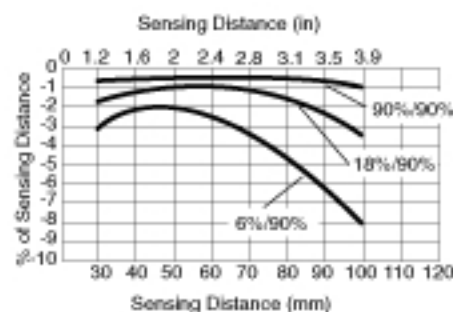


Fig. 2 Example WT 12-2 with black (6%) and white (90%) object on a black background

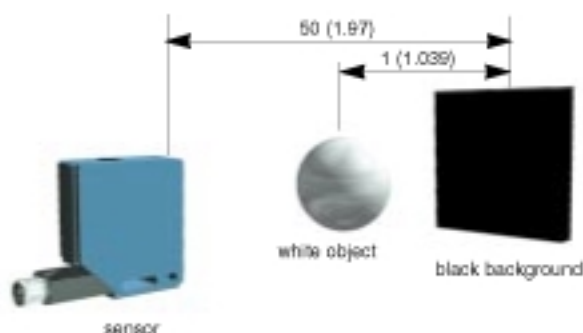


Fig. 3 At 50 mm an object must be 1 mm in front of the black background