

Applying Excess Gain

How do you use excess gain in choosing a sensor for an application?

Consider an application for detecting boxes in an industrial environment. This area happens to have a considerable amount of dust flying around. The boxes pass about two to five inches from the sensor as they move along the conveyor at the sensing location.

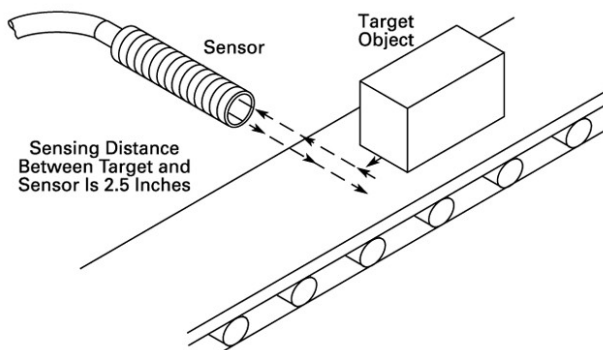


FIGURE 89: TYPICAL PHOTOELECTRIC SENSING APPLICATION

You are to select one of two diffuse reflective photoelectric sensors whose excess gain curves appear in these simplified graphs below.

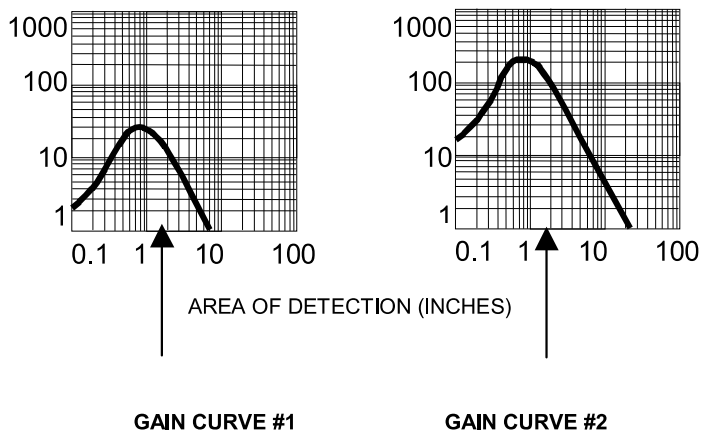


FIGURE 90: CHOOSING SENSORS

Both sensors have acceptable curves. However, as contaminants settle on each sensor's lens, the sensor on the left will fail first. The sensor on the right would work better here because it delivers more excess gain.

You don't want to rely solely on maximum range specifications — **always look for the maximum excess gain at the range where detection takes place.**

The way excess gain is determined is different for each sensing mode. Let's take some time to look at how each mode's excess gain is determined.