

OHDK 10 Background Suppression Laser Solves Bottle Sorting Application

Ray Tribendis, Mid-Atlantic Regional Sales Manager

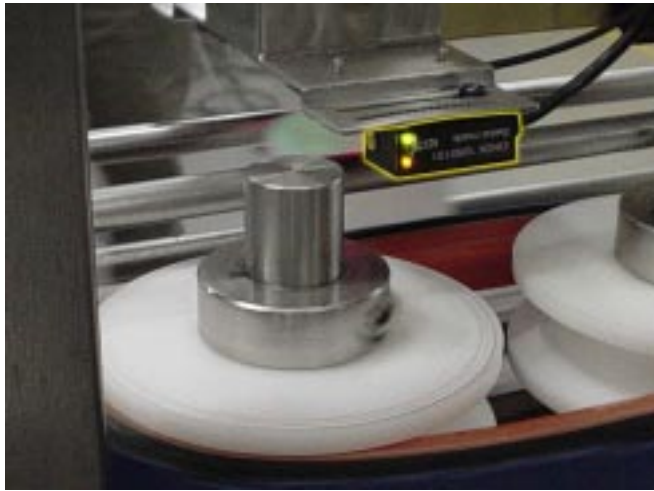


Diagram 1

Product: OHDK 0

Market: Packaging

The Application:

The customer manufactures bottle unscramblers. Plastic (PET) bottles are dumped randomly into a bin. Omega's equipment channels the bottles into mechanical rails, sending them downstream on a conveyor (Diagram 1). In the past, they had problems with the retro-reflective fiber optics they were using. False trips occurred, and the fiber/amplifier combination was expensive. Periodically, the thin fibers were broken by machine operators, causing machine downtime. The customer was very interested in a replacement sensor that had the ability to see a bottle rim at speeds of 300 to 400 bottles per minute.

User benefit:

The OHDK 10 was selected because of its high speed response time (.5 ms) and its ability to "see" the targets which vary in color. The bottles are primarily clear, however colored bottles are often handled by the customer. Utilizing True Background Suppression by Triangulation, the sensor relies on the angle of received light as opposed to the intensity of received light, which makes it insensitive to the changing bottle colors (see Sidebar).

An additional advantage in using the OHDK 10 is the size of the sensor. This self contained sensor is mounted relatively close to the sensing target, yet be far enough away from the moving parts of the system. The problem of machine operators breaking thin fibers has been eliminated.

A Word on Background Suppression

True Background Suppression by Triangulation sensors employ two receivers accompanied by a focusing lens. The receivers remain in a fixed position, while the lens is mechanically adjusted to change the angle of received light. As exhibited in Diagram 2, receiver B is focused, through lenses, on the background. Any light returning along that focal plane is "ignored". Receiver A is focused on the target, and any light returning at that angle will provide an output. This configuration allows for an extremely steep cutoff between target and background, sometimes smaller than 0.1 mm. Also, this is a more stable method when reflective backgrounds are present, or large target color variations are an issue: reflectivity and color affect the intensity of reflected light, not the angles of refraction used by triangulation-based background suppression photos.

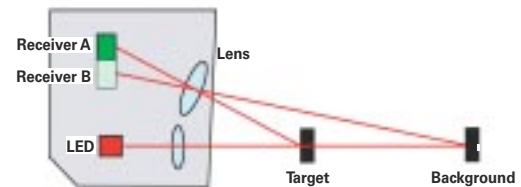


Diagram 2



122 Spring Street, C-6
Southington, CT 06489
800.937.9336
www.baumerelectric.com/usa