

Transparent Bottle Detection

INDUSTRY: Packaging

APPLICATION: Detecting the presence of transparent containers

The Challenge

A leading manufacturer of containers for the consumer goods industry needed to detect the presence of transparent containers for labeling, position detection and production counting purposes. It was imperative that the object detection be precise, repeatable and able to detect transparent, frosted and opaque objects.

High-cost, specialty sensors are often used to detect transparent objects. A compact, cost-effective, yet high-performance and easy to use solution was needed.

The Solution

EMX industries, Inc has applied the CNTX Advanced Contrast Sensor in a retro-reflective configuration as a solution that is well suited for integration into automated systems. The challenge presented by the high light transmission of the transparent containers was overcome by the use of a small 3mm spot size white LED (measured at 28mm) focused onto an 80mm diameter, corner-cube reflector. The CNTX transmits the light to the reflector and measures the level of reflected light. The introduction of an object, either transparent or opaque, causes the light transmission to change and the reflected light to drop below the sensor threshold triggering the NPN/PNP discrete output.

The photo (left) shows the CNTX-30-0 sensor aligned with the reflector. The sensor features a display with a range of 0-50 indicating signal strength. When aligned with the reflector the signal is strong and the display indicates a full-scale value of 50. A threshold adjustment allows the operator to select the switching level.



[Watch video of this application](#)



CNTX sensor with corner-cube reflector detecting transparent bottle

The photo (right) shows a transparent object placed between the sensor and the reflector causing attenuation of the light beam resulting in a weaker signal as indicated by the display. As the reflected light drops below the sensor threshold, the sensor the NPN/PNP discrete output changes state indicating presence of the object.

Equipment Required

[CNTX-30-0](#)
REFLECTOR-O

CNTX Advanced Contrast Sensor, discrete output, 3mm spot size
Reflector, 80mm diameter, corner-cube



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