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800.866.4568

OMRON

Focused Automation/Core Technology Solutions

Bottle Position Detection

E3X-MDA

Industry:

Food and Beverage

Applications:

Bottle Filling, Cartoning, Capping, Labeling, Marking and Coding

Problem:

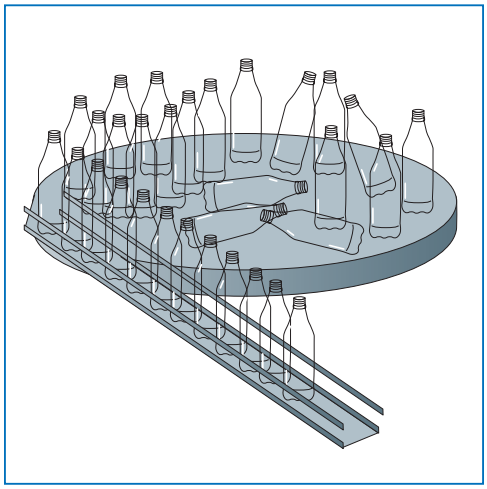
Proper bottle position prior to filling/capping, labeling, marking/coding or cartoning is critical. Fallen bottles result in costly line jams and product waste. Conventional bottle position detection systems rely on independent sensors and controllers for proper operation resulting in larger control panels, increased engineering and installation time and slower processing (throughput) speeds.

Omron "FACTS" Advantage

E3X-MDA11 Sensor amplifier
E32-D11L Long range fiber optic cables

Omron combined the power of two independent sensors into a single sensor form factor and added AND/OR control logic functionality that lets users handle high-speed, dual-input logic with a single compact sensor package. The single unit takes the place of three larger components. This reduces system complexity (wiring time, programming), and machine size while increasing throughput speed.

Application Diagrams



Toppled bottles are uprighted by an orienter based on sensor output as they leave the accumulating table.

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FACTS

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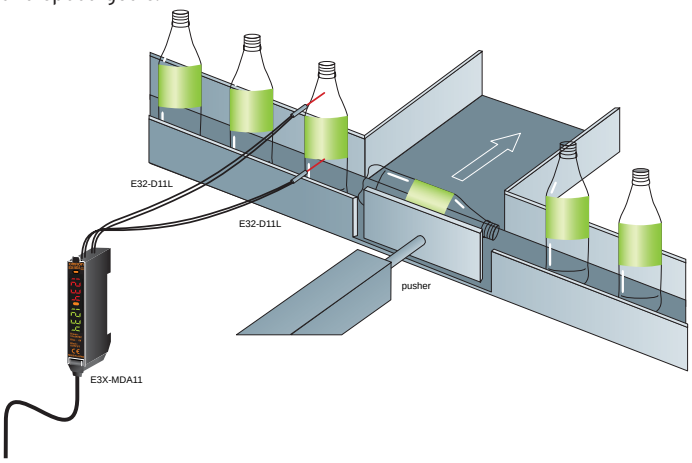
Bottle Position Detection Application Details

Issue

Automated packaging systems rely on properly oriented product to operate smoothly. Out of position bottles lead to line jams, product waste and loss of profitability. Packaging engineers are being pressured to create automation control systems to reliably detect misplaced bottles prior to filling, capping, labeling, marking/coding or cartoning. Reliance on conventional, multi-component control strategies has reduced the ability of these engineers to more quickly meet desired machine footprint and speed goals.

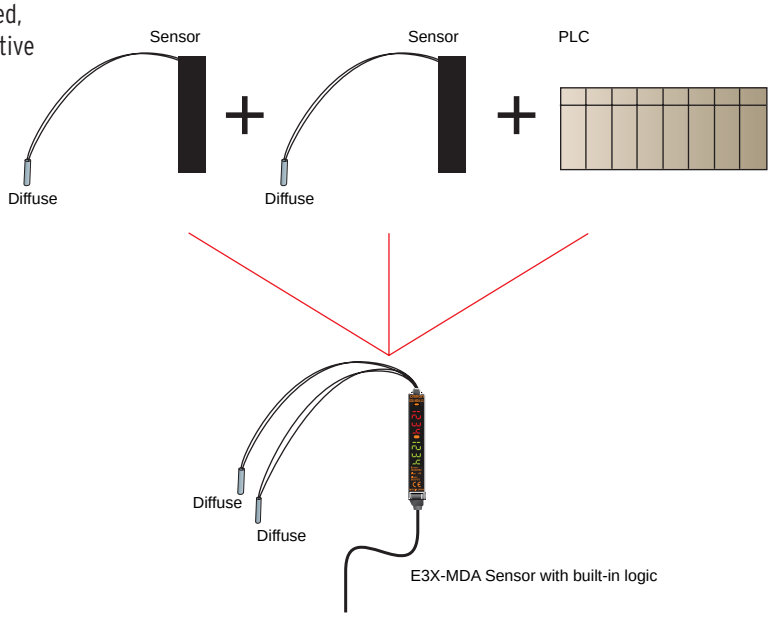


Cause

Traditional bottle orientation detection systems rely on older control strategies that employ two independent sensors and a separate logic unit (typically a PLC). While this approach works, the overall response time of the system is limited and the greater number of components contributes to machine size, complexity and maintenance.

Omron's Unique Solution

The E3X-MDA11 is fitted with two sets of E32-D11L long-distance fiber optic cables. The sensing heads are set to detect the top and bottom of a properly positioned bottle. AND logic is applied to determine that outputs from both sensors are ON at the same time. If only one sensor output is ON, a bottle is out of position and the sensor sends a signal to alert the operator. A large selection of slender fiber optics (wash down, corrosion resistant, armored, heat resistant, etc.) can be easily located in even the most space restrictive areas or harsh environments to ensure reliable detection.



Results

This unique solution replaces three components with one to reduce machine size offering control system savings in wiring, set-up time and engineering time.

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