OMRON
INDUSTRIAL AUTOMATION

Application Brief: **E3X-MDA Sensor**

Bottle Cap Presence Verification

INDUSTRY

Food and Beverage

APPLICATIONS

Plastic or aluminum cap presence verification in high-speed beverage bottling applications

PROBLEM

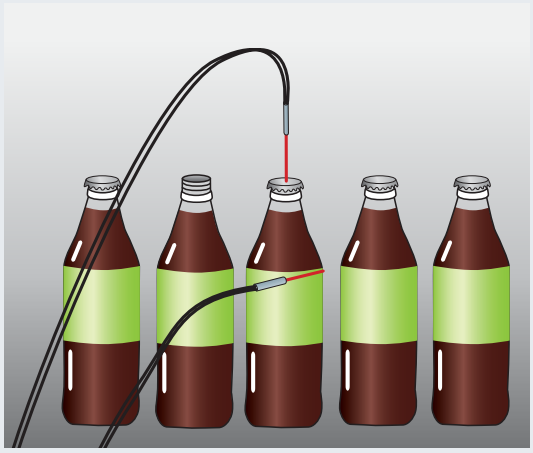
Current cap presence verification techniques require two sensors and a controller to reliably determine presence or absence of plastic or aluminum caps on bottles. Lag times in sensor communication and logic processing can limit machine throughput speeds. Multiple controls increase complexity, installation and maintenance costs, and the likelihood of failure.

OMRON ADVANTAGE

E3X-MDA Sensor amplifier
E32-DC200 Diffuse reflective fiber optic cables
E32-R21 Polarized retroreflective fiber optic cable

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.

APPLICATION DIAGRAMS



One sensor head detects the bottle's leading edge while the other inspects for cap presence. If both outputs are ON, the cap is in place.

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Bottle Cap Presence Verification Application Details

ISSUE

Packaging production engineers are under extreme pressure to contribute to profit by increasing throughput while reducing waste and machine downtime. Limitations in available control technology and the reliance on conventional control strategies have reduced the ability of these engineers to more quickly meet machine throughput and uptime goals.

CAUSE

Traditional cap presence detection architectures use older control strategies that employ two independent sensing inputs and a separate logic unit (typically a PLC). While this approach works, the overall response time of the cap detection subsystem is limited. The added number of components and programming also adds to the potential for machine downtime.

OMRON'S UNIQUE SOLUTION

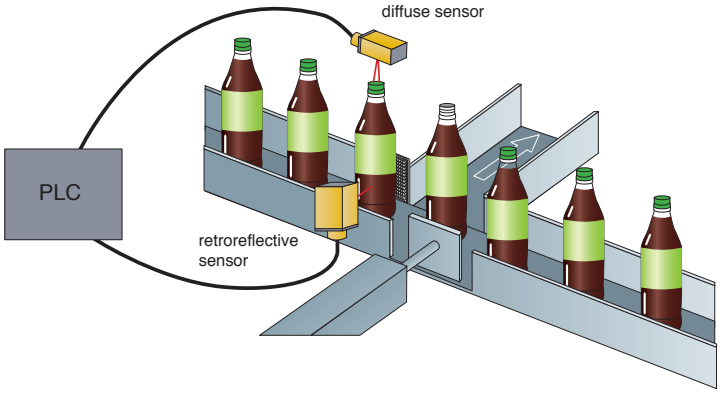
By combining the sensors and logic into a single compact package, the Omron E3X-MDA sensor and E32 family of fiber optic cables enhance cap detection applications and contribute to increased overall machine simplicity, speed and reliability. The innovative sensor combines two independent sensing units and AND/OR logic functions into a single sensor form factor. The unit boasts a response speed of only 130 microseconds, ensuring that throughput will never be compromised.

Finally, a wide selection of fiber optic cables enables the user to select just the right cable type for the job including wash down, armored, and corrosion resistant cables.

RESULTS

Because all the components are integrated into a single compact package, there is a lower probability of failure. Users benefit from the elimination of PLC programming, reduced component size and reduced wiring that contributes to overall system simplicity. This lets you reduce maintenance and set up time while increasing throughput and reducing down time – directly lowering costs and increasing profits.

Standard Sensor Operation



E3X-MDA Sensor Operation