

# OMRON®

## Focused Automation/Core Technology Solutions

### Fill Level Inspection

### Vision Sensors



#### Industry:

Food and Beverage



#### Applications:

Filling machines of all types including:

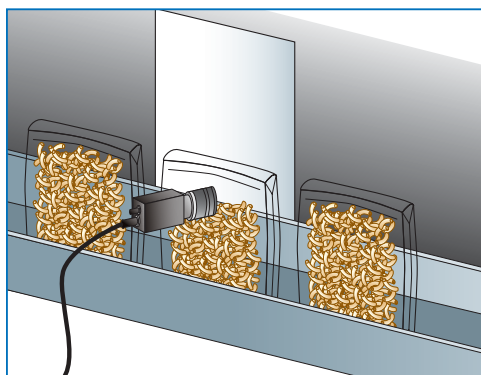
- Volumetric
- Timed flow
- Level fill
- Gravimetric
- Count fill



#### Problem:

Filling machine accuracy is subject to error from a wide variety of potential problems from flow rates to container variations. To ensure consistent fill levels, 100% quality inspection is required. Inspection systems must also be capable of keeping up with high-speed filling/bottling machinery.

#### Application Diagrams



*Inspecting fill level of solid product in a clear bag.*

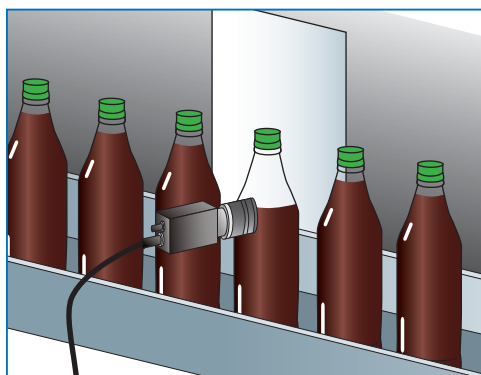


#### Omron "FACTS" Advantage

##### F160-2 Vision Sensor

Omron's F160-2 vision sensor combines high-speed image processing, easy setup and use, and high-accuracy edge detection tools to provide accurate, consistent and repeatable measurements of fill levels in a variety of containers. The sensor's unique "partial image scan" functionality enables extremely high-speed image processing that can keep up with even the fastest filling operations.

Easy menu-driven setup eliminates the need for a PC and additional software for setup.



*Inspecting fill level of liquid product in a clear bottle.*

# FACTS **Focused Automation/Core Technology Solutions**

## Fill Level Inspection Application Details

### Issue

Accurate fill levels have a direct impact on customer satisfaction and profitability. Failure to properly fill bottles to the correct volumes as stated on packaging results in loss of customer loyalty, consumer fraud allegations and recalls. Overfilling results in giving away product and profits. Because filling machine accuracy can be compromised by a wide variety of possible problems, it is critical that 100% inspection is completed to weed out containers with over or under fill conditions. The inspection method chosen must be fast enough to keep up with high-speed filling machines, and provide accurate and repeatable results.

### Cause

Filling machine accuracy can be compromised by several conditions including:

- Clogged or restricted supply lines
- Vacuum or pressure variations
- Under-filled pistons or augers
- Spillage
- Inconsistent product viscosity
- Container defects

### Omron's Unique Solution

The F160-2 vision sensor provides special imaging and measurement tools and algorithms designed for high-speed processing of filling applications. Edge detection and area tools, easy setup, and dual camera capability provide a complete solution to fill level inspection.

Powerful edge detection tools help quickly identify and measure exact fill levels and compare them to pre-defined level points. Independent control outputs can be assigned and configured to monitor variations in fill level quality and be combined with other data for overall inspection results.

For high-speed operations, the F160-2 offers "partial scan" functions which restrict image processing to a specified area of the image and results in extremely fast inspections that can keep pace with the fastest filling machines.

The F160-2 also features an easy to use, step-by-step, menu-driven setup program that requires no extra software or PC. All programming is done using a simple, hand-held keypad.

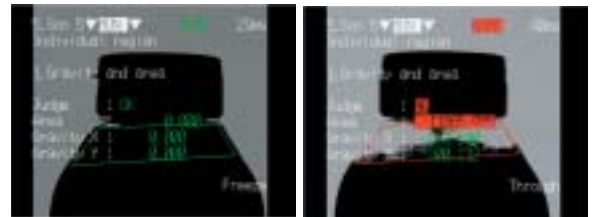
For products with fill levels that vary across the length of the product, the F160-2 offers dual camera capability and simultaneous capture for high-speed inspections. The dual camera function is also ideal for inspecting fill levels from different angles.

Omron's unique capability to offer a total automation solution provides not just a vision product solution, but the capability and expertise to deliver an entire system of inspection and integration. We offer local, national and international support to develop applications and support our customers.

### Results

Accurately and reliably detect fill level variations to eliminate defective packages and identify potential filling level problems *before* they result in high defect rates. 100% fill level inspection enables processors to eliminate improperly filled containers from the supply chain, keeping consumers satisfied and the brand image intact. Easy menu-driven setup and edge detection tools shorten installation and changeover times.

The F160-2 high speed processing capability allows you to run at full production speeds without compromising inspection results.



Possible over fill

Possible under fill



Possible over fill

Possible under fill

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