

Double Coverage for Bundled Bottles: New technology helps beverage producers get reliable detection and reduce costs

Less is more in packaging today, as all manufacturers seek to reduce costs and waste while also improving the overall sustainability of their operations.

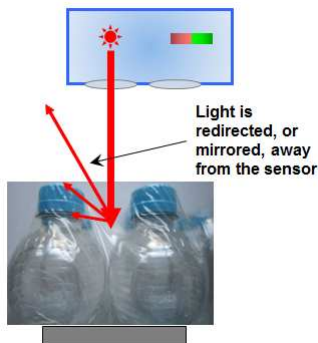
Beverage manufacturers in particular have been attuned to this trend, exploring ways to modify the type, quantity, and mix of packaging materials used for their products. These manufacturers have made great strides in the use of printed shrink wrap and other materials to economically, yet effectively accommodate an ever-growing and diversifying range of package types.



A frequent challenge with cost control, however, is keeping these strategies in balance with other manufacturing priorities such as the productivity and efficiency of the packaging system. Today's demands typically require automated multi-lane conveyors to operate at peak speeds, leaving little leeway for errors or interruptions.

Yet meeting these demands has become increasingly problematic for beverage manufacturers as they rely more on shrink wrap as a method for packaging products of varying sizes, types, and quantities.

In these applications, the sensor detects the presence of a bundled bottle package. What may seem like a relatively simple function, however, can become problematic for photoelectric sensors as different products and materials are conveyed. For example, an irregularly shaped bottle or highly reflective shrink-wrapped package can cause random deflections of transmitted light, missing the return lens and resulting in a "target absent" condition. This, in turn, leads to signal interruptions that result in mispackaged and misdirected items or, even worse, a line stoppage and costly unplanned downtime.



Similar problems also frequently occur with dark or low-remission targets such as clear shrink wrap, which may not return sufficient light for the receiver array to detect its presence.

What's all the flap about?

In many applications, retro-reflective sensors can be mounted only on the sides of conveyor lines. For presence detection of the middle lanes of a multilane conveyor, many systems incorporate a mechanical solution with an overhead flap. A separate inductive or photoelectric sensor then detects the presence of the flap when a passing object—an individual bottle or a package—moves the flap.

This relatively simple process is hardly ideal, however, because it requires complicated adjustments when changing formats. In addition, detection of a package is dependent on product contact, which may not be desired.

However, the device is also well-suited for any product or process involving shrink-wrapping, or other materials with extremely high or low reflectivity characteristics. Processes involving products of varying sizes or irregular shapes can also benefit from the dual-array sensor's many qualities.

Two are better than one

Advancements in sensor technology have created new, cost-effective alternatives to standard retro-reflective devices and mechanical improvisations. Dual-array technology, as used in the compact W27 MultiPac photoelectric proximity sensor from Minneapolis-based SICK, uses two independent receiver arrays mounted on both sides of a high-power, red LED and unique evaluation software to ensure continuous detection when diffused light is misdirected from bundled surfaces such as bottles, and other difficult targets. This sensor eliminates the obtrusiveness and space management issues of transitional solutions, resulting in simpler, more efficient machine designs.



Using two redundant receiver arrays, this sensor is able to detect shiny, glossy or dark targets within its foreground without signal interruptions by reliably capturing the redirected light, regardless of the target's reflectivity characteristics.

The dual-array sensor can be implemented at virtually any stage in the beverage manufacturing process—initial bundling and wrapping, transport to a labeler and/or palletizer, and pallet packing. However, the device is also well-suited for any product or process involving shrink-wrapping, or other materials with extremely high or low reflectivity characteristics. Processes involving products of varying sizes or irregular shapes can also benefit from the dual-array sensor's many qualities.

Putting dual-array technology to the test

At a leading global beverage manufacturer's new bottling plant in Europe, for example, full bottles are shrink-wrapped in PET foil to create six-packs at the end of the filling line. A state-of-the-art tray labeling system uses the MultiPac proximity sensor to detect the pack, ensuring that it is in the proper position for labeling, and that the foil is undamaged.

Typically, the very shiny and uneven surface of the PET foil wrapping used by the manufacturer causes random and unmanageable reflections for conventional photoelectric sensors. This leads to potentially disruptive and costly problems such as the unnecessary relabeling of the same pack or repeated jamming of the label stripper.

The labeling system's dual-array sensor technology offsets the brief deflections caused by the uneven pack surface, resulting in reliable detection of every six-pack and a smooth transition of

the bottles from the filling line to the palletizing station. The bottling plant's throughput and performance have also benefitted, with no pack detection problems reported during its first six months of operations.

Long-term flexibility

With an adjustable sensing range of up to 500 mm, the technological capabilities of the MultiPac sensor provide manufacturers with the flexibility to adapt their machines to changing materials with little or no modification.

Given its precision, low cost, reliability, and ease of use, the W27 MultiPac sensor is ideally designed for beverage manufacturers and others to keep their operations in step with the continually evolving demands of the markets they serve, and their own business priorities.

More information

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Video: see how the W27 MultiPac sensor works- <http://www.youtube.com/watch?v=C-rIWXXeZr0>

Web site: www.sickusa.com