

SENCON

Production counting or effective spoilage analysis demands accurate can counting. Recently a canmaker was alarmed to find that, on some processes, their outward product count was actually greater than the inward count! Something was clearly wrong. Sencon was asked to look at their counting system, which used standard proximity sensors.

Counting beverage cans presents some particular challenges that standard proximity sensors can't really cope with. It's common to find cans held 'stationary' on the conveyor while the belt continues to run underneath them. In this situation the cans will move about in front of the sensor, which can cause the sensor to continue to count the same can as it moves in and out of the sensor's sensing field. This effect is known as 'jitter'. Also, the variable bunching or spacing of cans on a conveyor makes it difficult for standard proximity sensors to achieve the correct sensing distance.

These issues were overcome by installing Sencon's intelligent count sensors. The counting heads have a unique ability to compensate for backing-up, jiggling, and bouncing without losing the correct count. The dual headed design also means that they have no trouble achieving the correct sensing distance whether the cans are tightly bunched or loosely spaced along the conveyor.

A more subtle source of counting inaccuracy is related to the PLC program cycle time. Fast moving cans, which may also be a distance from the face of the sensor will produce a short duration count pulse. This happens because it's only the extreme peak of the can's circumference that is detected. Also, it should not be forgotten that cans on air conveyors or



gravity trackwork may move at velocities greater than the maximum rated production speed of a line. These short duration count pulses may at times be shorter than the PLC's I/O cycle time, in which case there are missed from the overall count. Using the optional "divide-by" feature (1, 2, or 10) in Sencon can count sensors makes it possible to effectively stretch the output signals to an acceptable duration for programmable controller applications to process while maintaining a highly accurate count for production and spoilage analysis.

