

molex

CONTRINEX C23 SERIES: MINIATURE DIFFUSE-MODE

Miniature photoelectric sensors minimize costly interventions due to underfilled cartons.

BUSINESS CHALLENGE

In the food processing industry, consumer products require secondary packaging before the final dispatch. During confectionary production, individual bags of candy travel by conveyor from bagging stations to a pick-and-place packing robot for secondary packaging into a carton. The carton then proceeds to the labeling area.

Ideally, product flow along the conveyor is continuous. In practice, interruptions occur from time to time when bagging machines require attention. In such cases, when bags stop arriving at the secondary-packaging station, the plant-wide control system should pause the operation of the pick-and-place robot. Otherwise, the vacuum pick-up head would go through the motion of packing a bag that wasn't really there, making the counter inaccurate. As a result, the carton would be moved on even though it wasn't filled, leading to the necessity of manual intervention further down the line, which is costly, time-consuming and a waste of resources.

However, alerting the control system to pause the pick-and-place robot is challenging. Immediately preceding the secondary-packaging station, custom-formed guide rails align bags for packing. These guide rails prevent easy access to both sides of the conveyor, so a highly reliable noncontact sensor system is needed to detect the bags as they approach the alignment rails. Additionally, in order to prevent underfilled cartons, this same sensor system must be able to pause the pick-and-place sequence if no bags are queued for packing.

CUSTOMER SOLUTION

Miniature diffuse-mode photoelectric sensors from the Contrinex C23 Series are ideal for secondary-packaging applications. These highly reliable devices contain both a transmitter and a receiver and do not require a separate reflector because they use the reflective nature of the target. Space constraints are accommodated without compromise, thanks to a maximum sensing range of 3.00 to 1,500.00mm. This is adjustable via a preset potentiometer or via IO-Link, the standardized point-to-point serial connection protocol.

Immediately before the alignment rails, a single sensor is mounted beside the conveyor. Positioning sensors is simple, thanks to a range of adjustable mounting brackets. As each bag passes in front of the sensor, its presence triggers the device, sending a signal to the customer's control system. A high-intensity red LED with a 15.00mm-diameter light spot at the selected 500.00mm sensing range ensures highly reliable detection of bags in real time.



Mounted in 20.00 by 30.00 by 10.00mm miniature plastic housings, C23 photoelectric sensors are available with industry-standard PNP or NPN 3-wire or 4-wire output. Connection to the customer's control system is via a PVC-sheathed cable with the choice of an integral M12 connector or a hermetically sealed entry. A second output provides a stability alarm in the event of reduced sensitivity, flagging the need for preventive maintenance before any performance degradation occurs.



BENEFITS AND ROI

Advantages

- Reliable, repeatable inline detection on a noncontact basis
- Reduction of errors caused by previous mechanical sensors
- Increased productivity as stability alarm flags preventive-maintenance needs
- Single sensor accommodates a range of bag sizes without repositioning
- Remote adjustment via IO-Link reduces changeover time between products

Product Features

- Maximum sensing range: 3.00 to 1,500.00mm with high-intensity red
- IO-Link connectivity available at no extra cost on PNP versions
- Switching frequency selectable between 550 Hz and 5kHz via IO-Link
- Dual output with stability alarm



Contrinex C3 Sensors in Secondary Packaging Station

To learn more www.molex.com/link/contrinex-sensors.html

Molex is a registered trademark of Molex, LLC in the United States of America and may be registered in other countries; all other trademarks listed herein belong to their respective owners.