BANNER
more sensors, more solutions

Solution Profile » Material Handling

Customer

A high-volume jewelry manufacturer

Customer Requirements

Accurate sorting of jewelry packets in thin, clear plastic bags on a high-speed multiple zone sortation conveyor

Banner Solution

LX Series part-sensing light screen

Why Banner?

Precision – Highly sensitive multiple-beam light screen reliably detects very thin and small objects over wide detection area

Speed – Exceptionally fast response time ensures down-the-line events occur on-time

Customer Benefits

Total Detection – 100% success rate for packet tracking facilitates accurate sorting and distribution of jewelry packages

LX Series Features

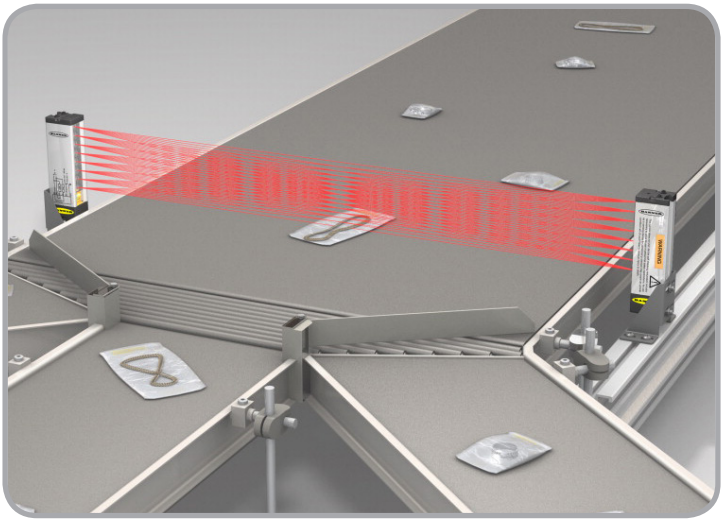
- Optical cross hatch pattern detects very small diameter and extremely thin objects
- Fast 0.8 - 3.2 ms response time with 5 ms pulse stretcher for interfacing reliability
- Simple wiring configuration: no synchronization wire required
- Bipolar design offers NPN and PNP solid-state outputs
- Rugged IP65 rated housing

Learn More

Visit *www.bannerengineering.com* for product information and to locate a distributor

- LX Series light screen overview

100% Detection Rate of Thin Plastic Bags Reduces Sorting Errors, Improves Output



LX Series part-sensing light screens detect thin, clear packets of jewelry on a 60 cm wide multiple zone sortation conveyor, triggering down-the-line package routing events

Background

A jewelry manufacturer packages chains, charms and similar items in thin, clear plastic bags. They use a multiple zone sortation conveyor to route the packages for distribution. The timing of down-the-line conveyors, diverters and transpositors is dependent upon accurate detection of each package. Several retro-reflective laser sensors located along the length of the conveyor were used to track the packages.

Challenge

Missed or late detection at any sensor point can cause diverters and transpositors to open at the wrong time, resulting in misdirected and stray packages, shipment errors and lost productivity. The laser sensors would frequently see through the clear plastic bags but be unable to detect the minute contents. The very thin profile of the bags and their varying positions on the 60 cm wide conveyor made reliable detection difficult: often, bags would simply pass underneath the detection zone.

Solution

The company integrated 12 pairs of Banner's standard LX Series part-sensing light screens onto the conveyor. Each emitter and receiver pair produces a strobed web of modulated light beams capable of detecting very small, flat or thin objects. Standard LX Series light screens support separations between receiver and emitter of up to 2 m, enabling reliable detection regardless of package position or orientation. Their exceptionally fast response time is ideal for applications like this where precision and timing are critical to down-the-line operations.

Replacing the retro-reflective laser sensors with Banner's LX Series light screens led to dramatic improvements in system performance. The light screens offered superior speed, range and sensitivity to small objects. With these improvements in accuracy and reliability, the company was able to detect 100% of the jewelry packets, reducing the number of misrouted and stray packets and improving output.