Fast and Reliable Jam Detection

Q5X Jam Detection Sensor

The Q5X Jam Detection Sensor is a plug-and-play solution that helps personnel respond to real jams faster. It also helps to reduce both excessive wear on equipment and damage to goods traveling on conveyors. With the Q5X Jam Detection Sensor, you can prevent large jams from occurring and provide safer conditions for personnel. Additionally, throughput will increase on conveying systems by reducing false jams and preventing unnecessary shutdowns.

Why Use the Q5X Jam Detection Sensor from Banner?

- Built-in jam-detection algorithm: does not rely on gaps to sense package flow.
- Detects a variety of package types including boxes, bottles, and polybags.
- Functions as a stand-alone solution or easily replaces other jam photo eyes.
- Easy installation:
    - Industry-standard M12 connector
    - Variety of mounting brackets available

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Key Benefits

Respond to real jams faster and reduce the excessive wear jams cause to equipment

Common workarounds for false jams cause more problems. Typical methods include increasing the jam delay timers to over 20 seconds. When real jams occur, the response is delayed, which can cause excessive wear on equipment as packages pile up. Damage to goods stuck on conveyors can occur as large pileups begin to stress everything on the line.

Reduce opportunities for unsafe work conditions from clearing jams

When traditional jam-detection methods cause excessive delays for detecting real jams, packages pile up quickly, which must be addressed by workers. It is common for workers to use “jam poles” to dislodge stuck packages to get the line flowing again. It is also possible that workers need to access hazardous areas to clear these jams. The Q5X Jam Detection Sensor from Banner detects jams faster which helps jams from becoming a bigger problem.

Reduce or eliminate false jams

A false jam is whenever a sensing system determines there is a conveyor jam, but there is no jam present. An example of this is when a slug of packages is moving end-to-end down a conveyor without a gap, causing typical jam photo eyes to falsely detect a jam.

In one instance, a customer of ours discovered that 82% of jams detected on conveyors using conventional sensing methods were false jams. The costs of false jams stack up fast and include:

- Lost productivity due to conveyors stopping unnecessarily when a false jam is detected.
- Downstream processes starved for work; you cannot pack boxes when nothing is flowing on your conveyor.
- Lost time spent by maintenance or operations diagnosing a problem that is not there.

How much are jams costing you?

Here are a few variables to consider:

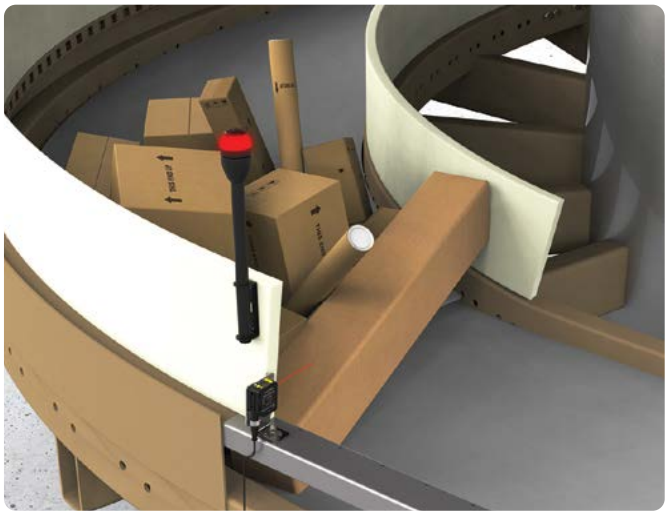
- Quantity of jams per day
- Percentage of false jams per day
- Average downtime caused by a false jam
- Value of throughput on the conveyor
- Cost for technicians to address a false jam
- Lost productivity due to down-stream processes not getting packages

Power Curve

Packages entering a power curve can pile up rapidly if a jam occurs on the exit. This area is also prone to false jams as the bulk flow of packages offers few gaps for traditional methods to detect the jam. In this application, the Q5X Jam Detection Sensor is mounted immediately after the curve. This allows the sensor to detect real jams quickly and minimize false jams.

Gravity-Fed Spiral Conveyor

Packages typically get stuck midway down the spiral in this type of conveyor, causing a backup that is difficult to clear if the jam is not identified quickly. Standard photoelectric sensors might falsely detect a jam due to a lack of gaps between packages, thereby triggering a maintenance event when there is no actual problem. Simply replacing the standard photoelectric sensor with the Q5X will help solve both problems.



Non-Singulated Bulk Flow

Multiple packages moving side by side may have few visual gaps between them, and traditional photoelectric sensors can falsely identify jams as a result. Because the Q5X Jam Detection Sensor does not rely on gaps between packages to detect flow, the number of false jam detections will be reduced significantly. Bulk-flow conveyors are also known for experiencing large jams due to the large quantities of packages moving on them, but by leveraging the Q5X, you can ensure that any actual jams will be smaller than they would be with traditional sensors, and there will be less impact on productivity.

Q5X Series Jam Detection Sensor

Mode	Range	Output	Connector	Model
Adjustable-Field Jam Detection	2000 mm	Configurable Dual Discrete	Integral M12 Swivel	**Q5XKLAF2000-Q8-JAM**

Specifications

Response Speed	User selectable: 3, 5, 15, 25, or 50 ms
Operating Conditions	–10 to +50 °C 35% to 95% relative humidity
Environmental Rating	IP67 per IEC60529
Construction	Housing: ABS Lens cover: PMMA acrylic Lightpipe and display window: Polycarbonate
Temperature Effect	2 m models: < 0.5 mm/°C at < 500 mm < 1.0 mm/°C at < 1000 mm < 2.0 mm/°C at < 2000 mm
Certifications	Industrial Control Equipment 3TJJ

Accessories

SMBQ5XFAM10

SMBQ5XDT

SMBQ5XM4F

SMBAMSQ5XIPRA

Double-Ended
with 5-pin straight male to 4-pin straight female connectors. Required for use between RSD and sensor.

MQDC-4501SS
0.3 m (1')
MQDC-4506SS
1.83 m (6')

M12 Straight connector
models listed; for right-angle, add **RA** to the end of the model number (**example, MQDEC2-406RA**)

MQDC-406
2 m (6.5')
MQDC-415
5 m (15')
MQDC-430
9 m (30')
MQDC-450
15 m (50')

SPS30PAR2PQ5
AC to DC Power and Output Signal Converter

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