Fireray Hub Reflective in Warehousing Application: A Case Study

At a glance

- Application: high-bay distribution warehouse
- 18 Fireray Hub controllers and 36 Fireray Hub heads installed in distribution centre in Northampton, UK
- Centre remained operational throughout installation and commissioning
- Estimated installation hours reduced from that for the previous system
- False alarm occurrence expected to trend downwards in the first 90 days post-commissioning

Executive summary

A busy distribution centre in the Northampton area needed to renew its high-bay smoke detection system without interrupting day-to-day operations. The warehouse originally installed FFE's Fireray 2000 beam detectors and later moved to an alternative beam brand. Over time, misalignment and nuisance alarms on the second system began to erode confidence and disrupt picking operations in the warehouse. The selected safety system supplier, Illumino Ignis, led by project manager Damon Erskine, recommended the new Fireray Hub Reflective system to reduce false alarms, compress installation time and simplify maintenance. With this product, they were confident of delivering a faster and more flexible installation, clearer zoning of detectors, and improved day-to-day stability once the system was fully commissioned.

Figure 1: High-bay storage aisles in the Northampton distribution centre, where Fireray Hub Reflective provides wide-area smoke detection with minimal disruption to operations.

Nuisance alarms = real business cost

False alarms caused by the existing detectors weren't just inconvenient; they created direct operational losses (see the example below). Evacuations interrupted picking, delayed dispatches, and demanded supervisor time to reset alarms and investigate their causes. Restarting a live distribution centre comes with knock-on effects: SLA risk, recovery labour, unnecessary hiring of elevated work platforms, and wasted time working at height. Any new system had to prevent false alarms by automatically maintaining the beams' alignment, and also be able to recognise brief obstructions without masking genuine events.

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Cost of a false alarm — example model

Downtime: 15-min evacuation + 15-min restart ≈ 0.5 hours.
Lost labour (140 staff @ £18/hr): ~£1,260.
Lost gross margin (1,500 orders/hr @ £1.50): ~£1,125.
Overtime to catch up (0.75 hr @ 1.33×): ~£625.
Engineer time and platform hire: ~£180.
Carrier/SLA penalty (typical): ~£500.
Estimated total per incident: ~£3,700.

Before selecting a solution, Illumino Ignis conducted a site review to confirm the best approach for the building and its operations. The review considered not only the operator's obligations and requirements, but also the landlord's responsibilities under current fire regulations as well as guidance from the building's insurers.

The solution: Fireray Hub Reflective

The recommendation from the review was to install a Fireray Hub Reflective system containing 18 controllers and a network of 36 detector heads, fully compliant with BS 5839. This solution offered the following key advantages:

- Networked architecture: multiple beam heads run from fewer controllers on a single bus cable, reducing cabling and speeding up the installation.
- Up to three heads per controller: a higher head-to-controller ratio reduces the number of devices mounted at height and cuts the time spent working on elevated platforms.
- Auto-alignment: a built-in algorithm monitors the beam alignment and makes adjustments via motorised mounts, ensuring reliable performance despite day-to-day warehouse activity.
- Configurable delays: short delays (which comply with BS 5839) prior to triggering alarm/fault signals allow brief aisle blockages to be distinguished from genuine events.

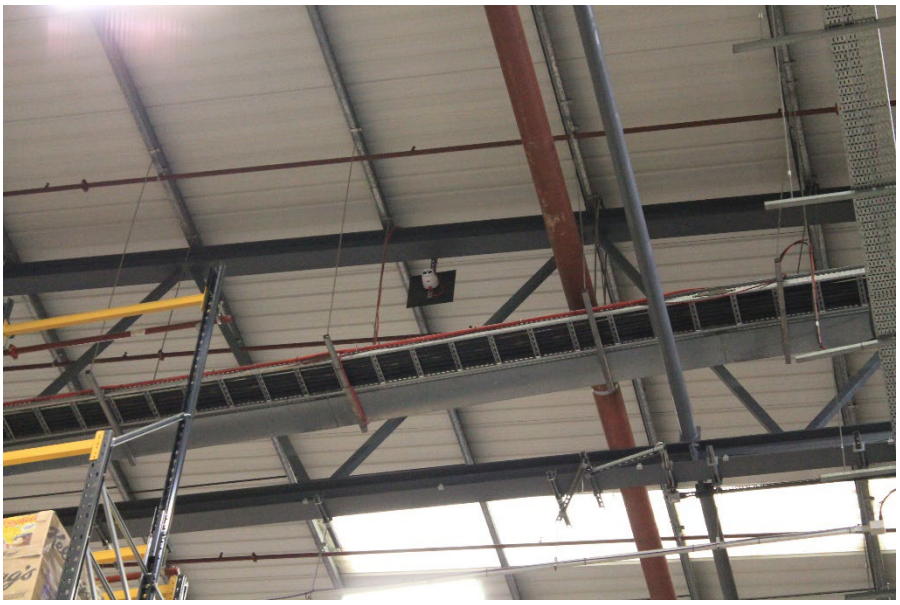

Figure 2: Fireray Hub Reflective beam head installed at high level, providing wide-area coverage across the high-bay warehouse aisles.

Delivering the solution

Brief, clearly-communicated aisle closures were scheduled to fit around live operations, and cabling was routed to minimise the need for repeated access at height. Where geometry allowed, back-to-back layouts were used so a single access session could deliver coverage in two directions. Controllers and heads were addressed and labelled to match not only the layout of the warehouse but also the way it works, so that docks, main runs and returns areas can be identified instantly on the panel. This allows rapid identification of the location of issues without long walks along aisles to find a single device.

Figure 3: Illumino Ignis engineer commissioning Fireray Hub Reflective controllers at ground level, avoiding repeated

Why it works
The system's flexible architecture means fewer terminations, fewer brackets, fewer hours working at height, and less disruption on the shop floor, with shorter, predictable shutdowns over well-defined areas. This all translates into a faster installation time, even on a live site, with less impact on the customer's operations. Early indications based on the beam's stability and settings also suggest that there will be fewer nuisance alarms and evacuations than previously. This in turn should reduce unnecessary and unwanted "stop-start" moments on the floor and the real costs attached to them.

During the installation, project manager Damon Erskine of Illumino Ignis commented, "Install time is already trending down, and early indications show the Hub's networking and laser alignment are making a clear difference."

As this case study demonstrates, the Fireray Hub Reflective approach, networked controllers and detectors; short, targeted closures; back-to-back layouts; and clear, logical zone mapping, can be applied across similar high-bay warehouses and distribution centres with minimal adaptation.

Legacy context (for clarity)
The high-bay areas in this warehouse were originally protected by Fireray 2000. The estate later moved to an alternative beam product. Returning to a modern Fireray platform equips the system with technology designed for high-throughput distribution centres, thereby simplifying the infrastructure and reducing lifecycle maintenance effort.
Note: Where airflow or obstructions challenge beam detection (e.g., chillers or mezzanines), pairing optical beams with aspirating smoke detection can give earlier smoke detection; however, this case study is intentionally focused solely on the Fireray Hub Reflective solution deployed in the main high-bay spaces.

About Illumino Ignis
Illumino Ignis is a specialist fire and life safety systems provider, delivering design, installation and ongoing support for complex sites across the UK.

Contact FFE
To discuss fire detection for warehouses and logistics, or to learn more about Fireray Hub Reflective Beam Smoke Detector, please contact us:

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