

Liverpool Arena, Liverpool



Project Outline

Contractor	Liverpool Arena (Direct to Client)
Location	Liverpool, United Kingdom
Sector	Leisure & Tourism
Disciplines Covered	<ul style="list-style-type: none">Fire DetectionAspirating DetectionVoice EvacuationEmergency Voice CommunicationAccessible Toilet AlarmInduction Loop SystemIntruder AlarmCCTVAccess ControlIntegrated Security Management Suite
Key Points of Interest	<ul style="list-style-type: none">21 Cirrus HYBRID Aspirating Detectors1800 Addressable Devices103 Two door access controllers

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Project Overview

Protec has been a trusted provider of life safety solutions for large public buildings for several decades. We have earned recognition as a preferred building integrator for many high-profile sporting and entertainment venues. With extensive experience, we are well-equipped to deliver state-of-the-art life safety systems that meet the highest standards.

One of our notable projects is the Liverpool Arena, originally known as the Echo Arena and later rebranded as the M&S Bank Arena. Opened in January 2008, this venue was fully equipped with life safety systems manufactured and supplied by Protec.

In 2024, the arena chose to upgrade its life safety infrastructure, opting for Protec's latest-generation systems to take advantage of advancements in safety technology.

The Challenge

Designing a system for an event arena presents unique challenges that differ from those found in standard commercial offices or retail spaces. These venues require special attention due to their large scale, specialised functions, and the significant crowds they accommodate.

While arenas need the same level of fire protection as other buildings, they must go further by prioritising the safety of thousands of attendees during high-capacity public events. In this regard, an arena is more akin to a football stadium or a busy shopping mall than a typical commercial property.

A primary concern is the high concentration of people present at specific times, which intensifies the importance of safety and security beyond basic fire protection. Previous tragic events in public arenas have underscored the need for advanced, adaptable security systems that can protect both guests and staff. This requires an integrated approach to supervision and surveillance.

Additionally, the architectural design of the arena introduces technical challenges. The immense scale of the structure, including its height and expansive open spaces, necessitates sophisticated solutions for the installation and maintenance of life safety systems. These systems must not only comply with regulatory standards but also seamlessly align with the venue's functionality, ensuring safety without compromising operational efficiency or the user experience. By addressing these factors, it is possible to create an event arena that is safe, secure, and fully compliant with industry standards.

The Solution

Fire Detection – The arena concourse and administration areas previously operated on a Protec 6400 addressable fire alarm system, utilising the 6000 series of devices. As part of the recent upgrade, the entire system was overhauled, replacing the existing panel infrastructure with a series of 6500 control panels, and upgrading 1,800 field devices to newer models. The updated system maintains its reputation for reliability and robustness, offering exceptional smoke and fire detection capabilities that enhance safety throughout the venue.

Aspirating Detection – The arena's large auditorium hosts a wide range of events, presenting unique challenges for fire detection. In this area traditional point or beam detection systems sometimes prove unsuitable for the environment, as event lighting and equipment frequently obstruct them. Instead, aspirating detection systems provide the ideal solution for this space. Previously, the auditorium was equipped with 21 aspirating units from the Cirrus Pro range which have now been upgraded to Cirrus HYBRID and ProPoint Plus units.

These units utilise Scatter chamber detection (SCD) or a combination of SCD and cloud chamber technology to detect fires or smoke early and effectively. These advanced detectors not only enhance the detection smoke and fire but also significantly reduces the risk of false alarms, ensuring reliable protection for the arena's dynamic event environment.

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Voice Evacuation – Traditional fire alarm sounders lack the unique benefits that a voice evacuation system provides, especially in large public spaces. A voice evacuation system's primary advantage lies in its ability to reduce panic and distress caused by the high-pitched, often startling noise of standard tone type sounders. For this reason, the arena is equipped with a BS 5839-9 compliant voice evacuation system, ensuring clear and calm guidance during emergencies.

Originally, the system consisted of four 19-inch PA racks; however, during the recent upgrade, these were reduced to just two 19-inch racks. Thanks to advancements in technology, the streamlined configuration maintains the same high level of coverage while significantly reducing the system's physical footprint. This optimised setup enhances system efficiency and frees up valuable space in the equipment room, offering practical benefits to the customer.

CCTV - The project involved upgrading the existing system to a cutting-edge VMS management system, which provides advanced features to speed up investigations, improve reaction time, and reduce support costs.

The installation included a selection of Vicon A.I. IP cameras, which provide advanced video analytics using machine learning algorithms to detect and respond to security threats in real-time. A selection of multi-sensor cameras was also utilised to give security staff at the arena unprecedented coverage while saving crucial installation and licensing costs.

Access Control – The access points throughout the site remain fully operational and unchanged. The existing system effectively meets all of the client's requirements, functioning reliably and without any technical difficulties. Additionally, this system integrates seamlessly with adjacent structures, including the Exhibition Centre Liverpool, ensuring a cohesive experience across the entire campus. This integration allows for efficient movement between buildings and enhances the overall functionality of the site.

Integrated Security Management Suite – In 2022, the security suite underwent a substantial update that transformed the entire security room. The previous system, which had become outdated and inefficient, was completely replaced by a state-of-the-art ergonomic security control center. This modern facility is designed to enhance operational efficiency and user comfort, allowing security personnel to manage their tasks more effectively.

The new control centre is equipped with advanced CCTV technology, enabling comprehensive round-the-clock surveillance of the entire site. In addition to video monitoring, the upgraded security suite integrates a variety of security and life safety systems. Overall, the overhaul has significantly improved the site's security capabilities, providing peace of mind through enhanced monitoring and rapid incident response.

The Aftercare

Liverpool Arena maintains a comprehensive maintenance agreement with Protec. This partnership has enabled continuous reviews of the building's fire alarm system and fosters ongoing communication between the building management team and our service and maintenance teams. As a result, the upgrade process has become more efficient, with the service and maintenance team leading the project due to their familiarity with both the system and the building layout. This familiarity facilitates smoother project delivery.

Liverpool Arena continues benefits from an active service agreement with us, which includes a 24-hour, year-round reactive call-out service.