

Manchester Airport Terminal 2 Phase 1, Manchester



Project Outline

Contractor	Manchester Airport Group (MAG)
Location	Manchester, UK
Sector	Rail and Transport
Disciplines Covered	Fire Detection Air Sampling Voice Evacuation & Public Address Disabled Refuge Induction Loop
Key Points of Interest	74 Miles of Fire Alarm Cable 2,356 Addressable Point Detectors 11,500 Meters of Air Sampling Pipe

Project Overview

Manchester airport is the UK's third busiest and largest airport outside of London. Over recent years there has been an increase in demand for overseas transport. Due to the rise in commercial and domestic flights, an expansion of Manchester airport became ever more apparent. Owners of the airport, Manchester Airport Group (MAG), proposed a 1-Billion-pound major expansion programme to expand the existing Terminal 2 (T2) building by 150%; this became the most significant investment in the airport's 81-year history.

The new expansion consisted of a 216-metre long pier, a new baggage hall complete with 44 new beverage/shop outlets, an energy centre and a 3800-space multistorey car park.

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The Challenge

MAG's vision for their new super terminal saw Laing O' Rourke appointed for the design and build of the 1-Billion-pound project. The project called for major Mechanical and Electrical tender packages to be created and carried out. The M&E package was awarded to Crown House Technologies, Who employed Protec Fire Detection plc to procure the fire detection and disabled assistance systems. The proposed life safety systems would link to the existing fire alarm systems. The works carried out had to ensure no disruption to the other parts of the airport while the refurbishment works took place.

The Solution

Protec designed, installed and commissioned the required systems which met the client, end-user and British standards/ EU requirements. The contract was awarded to Protec at a value of approximately 3.7 million pounds. Protec started on-site in September 2018 and continued work until March 2022. The project saw over 100 dedicated staff allocated to the project. This team of staff carried out the procurement of the following systems:

Fire Alarm - The system specified by the client was to offer complete coverage of the new terminal extension, energy centre and temporary passenger tunnel. Protec addressed the client's requirements by providing a new Protec 6500 digital addressable fire alarm system. The system is integrated into the existing Protec 6400 fire alarm system. The system installed features a front-end graphics system alongside a series of fire alarm panels located at various locations around the site to control and interrogate the system. In addition to the new fire alarm devices installed, the system also provided enough spare capacity for further expansion of the fire alarm system.

The site required a vast amount of automatic fire detection plus a substantial amount of fire alarm interfaces. The interfaces linked to several third-party systems included motorised dampers, security systems, and gas shut-off, enabling the control and monitoring of the third third-party systems via the Protec fire alarm system.

Aspirating Detection Systems - The T2 extension has multiple areas where access for maintenance is limited when the building is in use. Protec's solution to combat these constraints was through the use of aspirating fire detection systems. Protec selected multi-award-winning Cirrus HYBRID fire and smoke detectors from their range of aspirating systems to use in various terminal areas. This detection proved beneficial due to the ease of maintenance and installation, along with offering improved sensitivity over traditional point-type detection. The project would include 119 aspirating fire and smoke detectors across the terminal extension.

Voice Evacuation & Public Address (VEPA) – The Terminal is used by 1000's visitors daily. For this reason, an evacuation procedure has to be carried out with as little distress to the occupants as possible. With that in mind, the client opted for a VEPA system to be installed. A VEPA lends itself to complex evacuation procedures exceptionally well. The VEPA system offered the ability to issue a pre-recorded alert and evacuation message to the occupants without causing the same amount of distress a fire alarm system might. The system provided the ability for the fire services to address specific areas of the building if needed to issue out messages to occupants via a fire microphone. Protec's in-house audio design team developed the design of the VEPA system with years of experience in the industry and with the aid of complex acoustic models. The VEPA system installed ensures the building is evacuated quickly and efficiently in line with the client's evacuation strategy.

Disabled Refuge & Induction Loop – Protec offered disabled assistance systems such as voice evacuation communication (EVC) systems and induction loops. The new extension called for both types of systems in the client's brief, EVC outstations linked back to the main EVC panel within the T2 extension. EVC outstations were located throughout the extension at the appropriate locations where less-abled-bodied people could access and use them in an evacuation.

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Protec installed multiple hearing assistance systems known as induction loops. These systems assist hard-of-hearing occupants in hearing one-to-one conversations in public places. Protec provided several cross-counter induction loop systems installed alongside multiple bespoke loop hearing enhancement systems. These systems were installed at the desired seating and counter areas highlighted by the client.

The Aftercare

Protec continues to maintain the Manchester airport site offering complete reactive maintenance, fully comprehensive service and a maintenance package which benefits from a 24-hour, 365 days per-year reactive call-out service.