



DUBLIN AIRPORT IS BOOSTING AIRSIDE SAFETY WITH AN EMERGENCY FUEL SHUTDOWN SYSTEM

FEATURING A MOTOTRBO™ NETWORK AND TRBONET ENTERPRISE



CLH AVIATION IRELAND

The CLH Group is a leading international company in the transport and storage of petroleum products. It manages Europe's largest network of refined fuel products and is ranked seventh in the world in terms of storage capacity. In total, the company has more than 1,700 employees and a logistics system consisting of more than 6,000 kilometres of pipelines, 54 storage facilities and 34 airport facilities, with more than 9 million cubic metres of capacity, located across five countries. In Ireland, CLH Aviation is almost three years into a 20-year contract with the Dublin Airport to design, re-develop and operate the fuel farm that serves Dublin Airport, as well as to commission a new fuel hydrant system.

CHALLENGE

When CLH Aviation Ireland assumed responsibility for Dublin Airport's fuel facility in 2016, the airport had storage for 2.4 million litres of fuel. This has now increased to 15 million litres and CLH Aviation Ireland is in the process of installing an underground fuel hydrant pipeline and fuel farm to stands at Dublin airport, so aircraft can be refuelled in airside locations; this will save time and is a better environmental solution, as it will eventually negate the need for fuel trucks. Following industry best practice, CLH Aviation Ireland has arranged a fail-safe, emergency fuel shutdown system that would immediately cut any uncontrolled release of jet fuel supply to the hydrant at aircraft stands, in the case of potential fuel leakage, spillage or emergency airside.

The system also had to be accessible from fuel support vehicles, until these are replaced. The immediate requirement was for a system at the airport's Pier 4 (Terminal 2), with future extension to other piers (Terminal 1).

CLH Aviation Ireland partnered with Motorola Solutions Platinum Reseller, EMR Integrated Solutions, for the project. With nearly 40 years' experience in providing communications, SCADA and instrumentation solutions to a diverse range of markets, EMR has the expertise, engineering know-how and project management capability to deliver large, complex, integrated solutions on time and within budget.

CUSTOMER PROFILE

Organisation:

CLH Aviation Ireland

Partner:

EMR Integrated Solutions

Industry:

Aviation

Location:

Ireland (Dublin Airport)

Motorola Solutions Products:

- **Radio Network & Control:**
 - 1 x MOTOTRBO SLR 5500 Repeater
 - 1 x TRBOnet Enterprise PC dispatch system with SCADA Controller & Interface for TRBOnet Enterprise
- **Portable Radio User Equipment:** 10 x MOTOTRBO DP4401Ex ATEX portable two-way radios with IMPRES™ batteries and ATEX remote speaker microphones
- **E Stop Enclosure Equipment:** 8 x MOTOTRBO DM4400e mobile two-way radios
- **Airside Refueling Vehicles:** 20 x MOTOTRBO DM4401e GPS model mobile two-way radios

“We were under significant time pressure to install an emergency fuel shutdown system for both our airside fuel pumps and fuel tankers at Dublin Airport, as we needed a system in place before our underground hydrant went live. The experienced team at EMR team pulled out all the stops, designing, planning and deploying a high-quality system within a matter of weeks. The EFDS system can be both directly or remotely activated in case of an emergency and our operations room staff now have an immediate visual indication of the system and the status of each enclosure and fuel vehicle airside. We were delighted that EMR proposed radio hardware and applications from Motorola Solutions, as they are, quite simply, the global leader, when it comes to mission-critical communications”

Rioch Farrelly, Operations and Quality Engineer, CLH Aviation Ireland



SOLUTION

An integral part of EMR's Emergency Fuel Disconnect System (EFDS) is the radio network, which provides the link to the TRBOnet dispatch and SCADA systems. EMR immediately recommended upgrading the system CLH Aviation Ireland had in place, to a Motorola Solutions MOTOTRBO network built around an SLR 5500 repeater that enhances coverage and increases channel capacity to support both the data relating to the EFDS and the TRBOnet dispatch system, plus CLH Aviation Ireland staff voice communications. Users are equipped with the ATEX certified MOTOTRBO DP4401Ex portable two-way radio that allows them to communicate, even in areas where potentially explosive gases may be present.

EMR has now deployed its EFDS at 8 custom-built, weatherproofed enclosures. The enclosures each house a MOTOTRBO DM4400e mobile two-way radio, a front-mounted emergency button and a camera with still image or video download capability; the cameras allow CLH Aviation Ireland operations and airside authorities to have a granular view of each enclosure, visually represented on screen via the SCADA system; in case of emergency button activation, they can also view an image* of the person activating the button, so increasing system security. Upon activation of the emergency button, the radio sends a telemetry message to the TRBOnet dispatch system, which monitors the state of each enclosure, to trigger the SCADA system, which shuts down the fuel line supply. EMR also designed a similar solution for the third-party refueling trucks; this comprised an EFDS button on the outside of the vehicle and a MOTOTRBO DM4401e mobile two-way radio with GPS location monitoring, so dispatch can track the exact position of the tankers on the live maps of Dublin Airport displayed on their PC Consoles. The stop button can also be triggered remotely from the control room, if they are aware of a situation beyond the immediate airside vicinity.

The system provides live 24 x 7 monitoring and status updates via telemetry message from each pier-based enclosure, the location and colour-coded power status of which are displayed alongside tanker locations on dispatchers' maps. This saves time when re-setting or troubleshooting the emergency system. The SCADA

controller also allows CLH Aviation Ireland to carry out scheduled testing of the enclosures and hydrant support vehicles, without interfering with the live system or aircraft flight schedules. It is a critical component of health and safety operating procedure, strictly enforced by the airport operator, Dublin Airport.

BENEFIT

Dublin Airport now has one of the latest technologies with regard to fuel hydrant system safety requirements. Indeed, with no hard wire connections and designed to inform CLH Aviation Ireland if any of the ESB is out of communication, the resilient system is fail-safe.

Dean Reardon, account manager at EMR summarises: “This is an innovative solution which displays the strength of our extensive systems integration and automation skills. It leverages the power of MOTOTRBO and TRBOnet technology and the reliable, robust wireless voice and telemetry communications form the backbone of the system.”

There is no doubt the EFDS significantly boosts airside safety for staff and the 30 million passengers that pass through the airport annually; and it ensures Dublin Airport complies with its stringent health and safety protocols with regard to refuelling, audit trails and reporting. Indeed, CLH Aviation Ireland and the airport has recently approached EMR to request an additional 10 EFDS units for Pier 1, as the hydrant network will go live there in a few months time.

Usage:

- Group, individual and emergency communications with increased channel capacity to accommodate voice and data traffic, thanks to TDMA technology
- The MOTOTRBO radios based in the enclosures send telemetry messages to the TRBOnet dispatch system, for status updates or to trigger the SCADA system for fuel shutdown
- The MOTOTRBO radios installed on the fuel tankers provide real-time accurate GPS information and send telemetry messages
- The TRBOnet Enterprise PC dispatch system enables real-time enclosure monitoring, daily status updates and audit trails for any shutdowns, as well as triggering the SCADA system; it also allows dispatchers to coordinate communications and teams, log calls and track tankers

Benefits:

- EMR delivered a rapid, bespoke deployment
- EMR's Emergency Fuel Disconnect System (EFDS), with both direct and remote activation via the MOTOTRBO radio link to the SCADA system, enhances airside safety
- Clear, reliable, secure radio communications with Intelligent Audio on ATEX MOTOTRBO radios ensure staff can always communicate immediately, safely and effectively
- IMPRES energy system ensures radio batteries are fully charged and maintained in optimal condition
- CLH Aviation Ireland's solution also provides real-time, visible status of each emergency enclosure through the existing SCADA system, as well as a full audit trail and easy incident reporting

*Images are used in strict accordance with GDPR legislation