



# **SUCCESS STORY:** **LORA ENABLED HONEYWELL MULTIRAE AND BW RIGRAT FOR THE MADRID FIRE BRIGADE**

## **Enhancing Safety and Efficiency with Advanced Portable Gas Detection**

### **BACKGROUND**

Managing flammable gas leaks in urban environments poses complex challenges for emergency services. Fire departments, such as the one in Madrid, Spain, must address the dual threats to both civilians and responders, particularly amid dense urban infrastructure.

These hazards require a well-orchestrated response strategy that is meticulously planned and executed. The Madrid fire department plays a crucial role in protecting the public from various dangerous situations, including flammable gas

leaks, fires, and hazardous materials. To enhance their capabilities in gas detection, they recognized the urgent need for an advanced portable gas detection solution to ensure the safety of both firefighters and the community at large.

**Honeywell**

## THE CHALLENGE

The fire department encountered significant challenges with its existing gas detection equipment. The detectors lacked versatility to handle scenarios common in a large city, leaving first responders inadequately protected against a range of toxic and explosive gases.

Additionally, their current gas detection equipment faced significant connectivity issues, especially during remote disasters or when multiple fire departments were deployed across the city. These connectivity gaps led to difficulties in communication with the command center, which resulted in a lack of real-time updates on the status and locations of firefighters.

This communication breakdown severely impacted the command center's ability to manage deployments efficiently, delaying response times and increasing risk to both emergency personnel and the public. Moreover, reliance on manual processes further complicated the situation, as maintaining situational awareness and coordinate multiple operations simultaneously proved to be a challenge.



*Hard case featuring various RAE Products including ToxiRAEs, MicroRAEs, MultiRAEs and an Echoview*

The existing fleet, composed of single-sensor and four-sensor detectors, offered a limited spectrum of information, compromising the department's operational readiness and coordination. Collectively, these issues not only hampered the department's efficiency but also the safety of both firefighters and the public, necessitating an urgent upgrade to their gas detection capabilities.

## HONEYWELL SOLUTION

To address these challenges, the Madrid fire department implemented a comprehensive Honeywell solution. This setup includes:

- **MultiRAE Gas Detector:** Equipped for accurate gas detection and capable of hosting up to six different gas sensors, which provide configurability and real-time wireless connectivity.
- **BW RigRat:** An area monitor designed specifically for perimeter monitoring.
- **Central Hub:** This collects gas detector data and reports it in real-time to the command center.
- **Honeywell Safety Suite Responder:** A software solution designed for first responders to manage deployments effectively.
- **Honeywell's Rental Solution:** The Madrid fire department rented gas detection devices that were adaptable to their operational needs from a Honeywell distributor.

## FIRE OVERHAUL WITH THE HONEYWELL MULTIRAE

The Honeywell MultiRAE stands out with its advanced chemical detection technology. It provides instant access to instrument readings and alarm statuses from any location and can house up to six different gas sensors. Configurable with a selection of up to 25 sensor options, including LEL, PID, and NDIR, the MultiRAE ensures comprehensive monitoring.

Each deployment unit includes one VOC detector (LEL or PID) and various sensors such as O<sub>2</sub>, SO<sub>2</sub>, HCN. For quick identification, each MultiRAE configuration was outfitted with a different color rubber boots. With five built-in alarms and continuous data logging capabilities, the MultiRAE facilitates prompt and effective incident response.

Additionally, the Madrid fire department utilized the MultiRAE for fire overhaul operations - an essential process that ensures indoor spaces near fire scenes are meticulously monitored for gas accumulation. By promptly identifying residual gases, the fire department could detect and prevent potential re-ignition, thus enhancing scene management efficiency.

## PERIMETER MONITORING WITH THE BW RIGRAT

The BW RigRat is crucial in the fire department's safety protocol, particularly for establishing a secure perimeter around hazardous zones. When responding to incidents, multiple BW RigRat monitors are strategically positioned to create a comprehensive wireless safety perimeter.

This setup allows the command center to receive real-time gas readings, location data, and other vital information from the deployed MultiRAE units, facilitating fast and informed decision-making during emergencies. The BW RigRat features up to six slots for interchangeable gas sensors, including electrochemical, PID, infrared, and catalytic bead sensors. It also features an integrated noise sensor, meteorological data sensors, and is certified for use in explosive atmospheres, demonstrating its reliability and safety. With a robust design capable of operating in temperatures ranging from -40°C to 60°C and a runtime of up to eight weeks on a single charge, the BW RigRat ensures reliable performance in various challenging environments. Its one-button operation allows for quick deployment, making it an indispensable tool for ensuring the safety of firefighters and the public.



*Honeywell MultiRAE with RAP-Sep Cartridge for Benzene*



*Honeywell MultiRAE Pro with LEL, PID, CO<sub>2</sub>, HCN, O<sub>2</sub>*



*Honeywell BW RigRat*



*MultiRAE devices being used in the field.*

## LORA-ENABLED DEVICES

To address connectivity challenges, the MultiRAE, RigRat, and Central Hub utilized LoRA as the communication protocol. This granted extended range and improved coverage, allowing devices to communicate over longer distances, even in challenging environments. Devices enabled with LoRA could communicate over longer distances, even in challenging environments such as those encountered during natural disasters. This technology ensured that communication between deployed devices and the command post remained robust and reliable.

The integration of GPS tracking with LoRA technology provided real-time location data, significantly enhancing situational awareness and operational efficiency. The command center could swiftly pinpoint the exact positions of gas detectors and respond promptly to any detected hazards, ensuring the safety of both firefighters and the public. The combination of advanced connectivity and real-time

data transmission transformed the overall emergency response strategy, making it more effective and resilient in the face of diverse challenges.

## CENTRAL HUB

The Honeywell Central Hub, a universal connectivity gateway, significantly enhances the fire department's gas detection capabilities by extending communication range and reliability. Installed in each fire truck, the Central Hub employs Long Range Low Power (LoRa) radio technology to collect real-time gas sensor data from up to 64 LoRa-enabled detectors and report it to the Honeywell Safety Suite software.

This setup ensures the command center receives immediate updates during hazardous situations, such as natural disasters, enabling quick, informed decision-making. The versatile uplink methods (Ethernet, Wi-Fi, Cellular) and GPS capabilities make the Central Hub essential for monitoring and managing safety in dynamic and challenging environments.



*Honeywell Central Hub*



*Honeywell MultiRAEs and a Central hub installed in a fire truck*

## HONEYWELL RENTAL SOLUTIONS

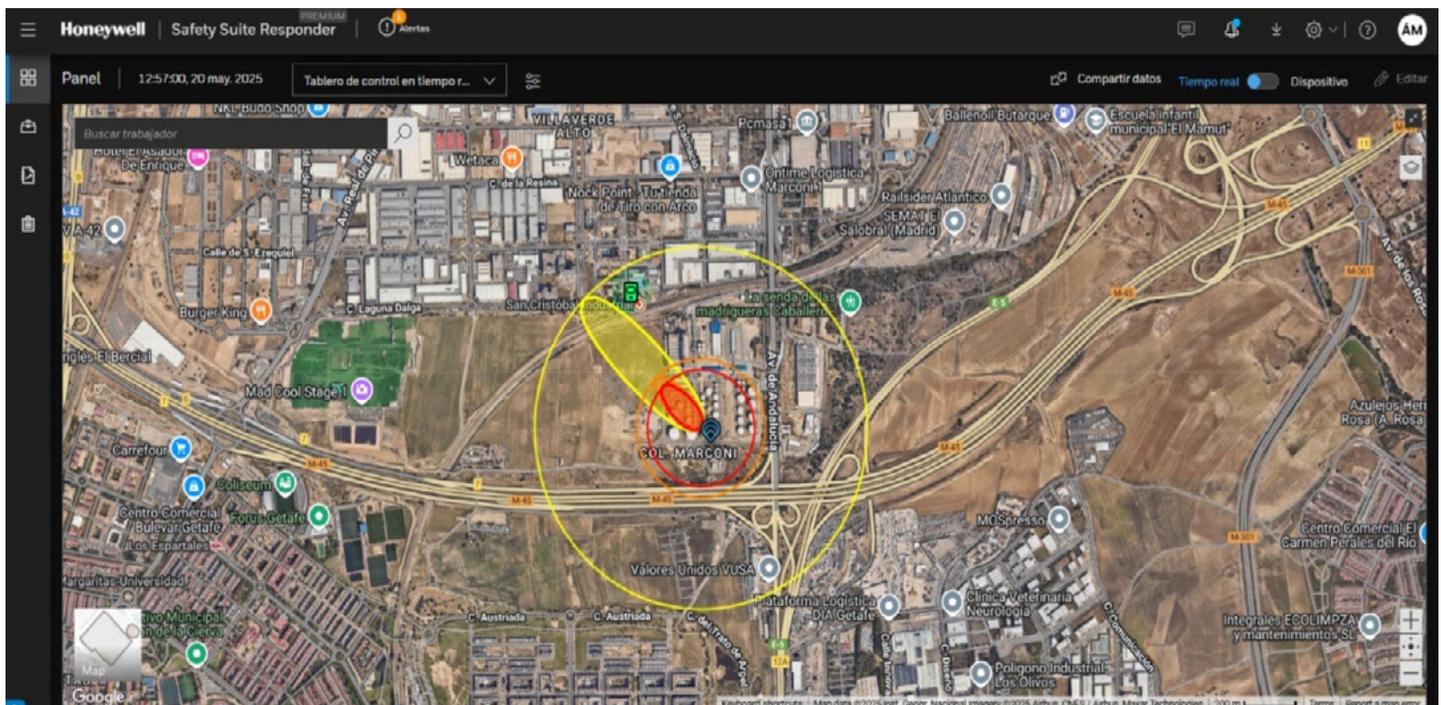
Honeywell's rental solutions, supported by a Honeywell distributor, provided the Madrid fire department with flexible and cost-effective access to advanced gas detection technologies. By utilizing Honeywell's rental program, the department was able to deploy the Central Hub and MultiRAE and BW RigRat monitors without the need for significant upfront investment, ensuring they had the latest, most reliable equipment at hand. The rental solution supported rapid response to emergencies, allowing the fire department to efficiently manage their resources and maintain optimal safety standards. With comprehensive service support, including maintenance and calibration, Honeywell ensured the devices were always in peak operating condition, thereby empowering the fire department to focus on their core mission of protecting the community.

## SAFETY SUITE RESPONDER

Honeywell Safety Suite Responder is a specialized solution designed for emergency response teams, offering real-time monitoring, device management, and enhanced safety capabilities.

During deployments, the Madrid Fire Department utilized Safety Suite Responder to track their gas detectors effectively through its integrated GPS and real-time data transmission features. This enabled the command center to receive immediate updates on device statuses and the exact location of the detectors, ensuring prompt and informed decision-making.

The system's easy-to-use interface and robust connectivity options, such as LoRa and cellular networks, further enhanced the team's ability to manage safety in dynamic and hazardous environments.



Honeywell Safety Suite Responder showing readings on a RigRat

## THE RESULTS

The successful deployment of the Honeywell MultiRAE, BW RigRat, Central Hub, and Safety Suite Responder solutions has significantly transformed the fire department's operations. Utilizing LoRa technology, these advanced devices provided robust and reliable communication, real-time GPS tracking, and enhanced situational awareness. The integration of the Safety Suite Responder enabled effective tracking and management of gas detectors, ensuring prompt and informed decision-making during emergencies. Furthermore, the Honeywell Rental Solutions empowered the department to access the latest gas detection technologies without incurring significant upfront cost, ensuring equipment was always in peak condition.

By addressing critical pain points and enhancing detection capabilities, these solutions empowered the department to ensure safety and minimize risks in challenging situations. The deployment brought key improvements such as rapid incident response, improved firefighter safety, and efficient equipment use. Overall, the fire department now operates with greater confidence and efficiency, protected by the advanced capabilities of the MultiRAE, BW RigRat, Central Hub, Safety Suite Responder, and rental solutions.

### For more information

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