

Hytera DMR trunking system boosts coverage, capacity and safety at Oman fertiliser plant



Introduction

The Oman India Fertiliser Company needed to upgrade the old analog radio system at its fertiliser manufacturing complex, so Hytera supplied a modern DMR Tier III trunked solution with much wider coverage and increased capacity, along with intrinsically safe portable radios for enhanced plant and worker safety.

The Background

The Oman India Fertiliser Company SAOC (OMIFCO) was set up as the result of a joint initiative between the governments of Oman and India. The company is 50% owned by the Oman Oil Company SAOC (OQ), 25% by the Indian Farmers Fertiliser Cooperative Ltd (IFFCO) and 25% by Indian fertiliser manufacturer Krishak Bharati Cooperative Ltd (KRIBHCO).

User Name

Oman India Fertiliser
Company S.A.O.C

Project Location

Sur Industrial Estate, Oman

Industry

Oil & Gas/Chemicals

Products/Solutions

- DMR Tier III DS-6211 Trunking System
- DMR Hand Portable Radios
- DMR Fixed Station Radios

“The Hytera team is professional and always ready to understand and support us whenever there is a need.”

Ali Said Mohsen Al Hinai, senior electrical engineer of OMIFCO

OMIFCO's task was to construct, own and operate a modern world scale two-train ammonia-urea fertiliser manufacturing plant at the Sur Industrial Estate in the Sultanate of Oman. The plant is designed to produce 1.652 million tons per year of granulated urea and 0.255 million tons per year of surplus ammonia using natural gas as feedstock. The plant first began exporting fertiliser in 2005.

The Challenge:

Providing expanded coverage, better audio, more functionality, and anti-explosion terminals

Before the deployment of Hytera DMR solution, OMIFCO relied on an old analog radio system for its communications at the fertiliser manufacturing complex, but the network was out of date and no longer fit for purpose.

OMIFCO needed a more secure network with a much wider coverage area, better indoor coverage, and the ability to support more modern features and increased functionality. The company, therefore, decided to upgrade its communications to a completely new, more advanced radio system.

The new system had to be capable of delivering reliable, consistent coverage up to a 5km radius of the plant - a total coverage area of 80km². It also had to provide many more radio channels than the old system could support to deliver greater network capacity.





The increased capacity was needed to support a greater number of users and talk groups requiring instant push-to-talk (PTT) solutions, and to avoid the necessity of call queuing. In addition, the sound quality of the analog radios was poor, so that was another problem the new radio system had to solve.

Due to the chemicals and processes used at the plant, OMIFCO also wanted to enhance safety at the complex by deploying intrinsically safe ATEX radio terminals capable of operating safely in potentially explosive atmospheres.

The Solution

Hytera proposed a solution based on its Digital Mobile Radio (DMR) Tier III DS-6211 trunking system. The solution supports a multitude of radio channels and enables large numbers of radio users to access the network at the same time. The system can handle high radio traffic scenarios, while maximizing available capacity across dynamic user groups and challenging site geographies.

The DS-6211 system comprises a core controller, RD985s repeaters and bi-directional amplifiers (BDAs) to extend coverage and overcome RF challenges such as high-rise buildings, tunnels and underground areas. It utilizes an IP-based system architecture and centralized networking to intelligently manage resources.

The solution provides high availability standby and multi-level fallback solutions to ensure high reliability and redundancy. The new DMR radios provide much higher quality voice services thanks to Hytera's digital audio and noise cancellation technology to ensure loud and clear audio even in noisy environments.

OMIFCO chose Hytera DMR intrinsically-safe hand portable radios and DMR fixed station radios. The intrinsically-safe radios meet the European ATEX directives, FM and IEC standards for safe use in environments containing potentially inflammable or explosive solids, liquids, gases and types of dust.

In addition, the radio terminals provide GPS positioning for the OMIFCO to dispatch staff efficiently, along with emergency calling, man down and lone workers alarms to help keep the workforce safe. They also meet IP67 standards for resistance to dust and water ingress.



The Benefits

Increased Capacity

The Hytera DMR Tier III trunking system solved the issue of limited channel availability. It provides a reliable, highly available system with easy user management.

Service and Maintenance Support

To ensure that the radio system continues to operate normally and stably, Hytera provides OMIFCO with a factory upgrade and annual on-site inspection, so that the system is kept up to date and any communication blind spots are removed and coverage is augmented.

Audio Accessories

Hytera has provided the customer with the latest Bluetooth earpieces for use with the intrinsically safe portable radios, so users can operate hands free in very noisy environments.

DMR Tier III Network Benefits

The trunked system provides full digital call recording and playback, live tracking of devices within the geographical area for better resource coordination and safety, along with other features.



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