



# ITALIAN SEAPORT UPGRADES TO A MOTOROLA SOLUTIONS DIMETRA™ EXPRESS TETRA SYSTEM

FOR EFFICIENT, SCALABLE, MISSION-CRITICAL COMMUNICATIONS



## APM TERMINALS

Part of A.P. Moller-Maersk, APM Terminals leverages more than a century of industry experience in designing, building and operating one of the world's most comprehensive port and integrated inland service networks, helping both shipping line and landside customers to grow their business and achieve better supply chain efficiency, flexibility and dependability. APM Terminals has a team of 22,000 industry professionals, operates a network of 76 ports and over 100 inland services locations globally, and generates an annual revenue of well over USD \$4 billion.

The Vado Ligure Port System in north-east Italy, is made up of two integrated terminals: the existing Reefer Terminal and the new terminal Vado Gateway, the first semi-automated port and fully automated gate and stacking yard in Italy. The new complex will be one of the most competitive terminals in Europe, combining innovation, automation, intermodal connectivity and the ability to offer fully integrated services such as cold storage, project cargo and roll-on roll-off shipping.

## CHALLENGE

APM Terminals was previously using a Motorola Solutions analogue radio system at the smaller existing terminal at Vado Ligure; however, it wanted to upgrade to a robust digital communications system with expandable and flexible architecture to both cover the new Vado Ligure terminal and allow for equipment usage interoperability and flexibility. It needed reliable, fail-safe coverage across the yards, cold stores, reefer racks, dock and ship areas, together with full scalability features, for progressive expansion, as the new terminal gets fully up to speed.

## CUSTOMER PROFILE

### Organisation:

APM Terminals Vado  
Ligure S.p.A.

### Partners:

Electronic Service s.a.s.  
Aikom Technology

### Industry:

Transportation &  
Logistics: seaports

### Location:

Vado Ligure, Savona, Liguria, Italy

### Motorola Solutions Products:

- DIMETRA™ Express TETRA system:
- 2 DIMETRA Express servers
- 2 x MTS4 TETRA base stations
- 90 x MTP3550 TETRA portable radios
- 80 x MTM5400 TETRA DMO gateway / repeater mobile radios (With further equipment to be deployed on full completion of the Vado Gateway Terminal)

For ship-to-shore:

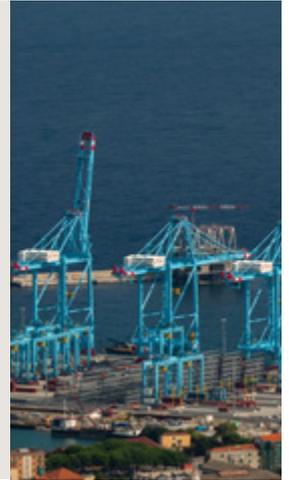
- PMMN4087 visor microphones
- RLN4856 footswitches with remote PTT

## CASE STUDY

### APM TERMINALS VADO LIGURE

**“Our Vado Ligure terminals, key hubs in the new so-called ‘Silk Road’, will be gateways and exit ports for the markets of northern Italy, Switzerland, Germany and north-east France. With a maximum annual capacity of circa 900,000 TEUs (twenty-foot equivalent unit), the terminals are equipped with all the latest technology, such as ship-to-shore cranes, automated rail-mounted gantries, straddle carriers and fully automated gates. With so much high-tech, we needed a similarly high-performance, simple-to-manage radio communications system, our new UHF Motorola Solutions DIMETRA Express TETRA network is just that. We use web-based network management and dispatch applications to tune the system with operation needs. Our partner Electronic Service has installed and configured the system to be allocated in two different locations, which ensures full redundancy, so we know our mission-critical communications will always be available. The system has become an integral part of the terminals’ day-to-day operations. It will also allow quick communications in case of terminal equipment maintenance issues and an efficient physical security and safety management.”**

Marina Klioukina, IT Manager, APM Terminals (Vado Ligure)



Locally based Motorola Solutions platinum partner, Electronic Service, carried out a full survey to define requirements in terms of coverage area, business requirements and working practices driving talk group setup. They designed the system and implementation plan in all areas including defining the most suitable vehicle-mounted and portable devices for each user and worked in conjunction with Motorola Solutions distributor Aikom Technology for hardware delivery. Electronic Service then installed and tested the network components, starting in the Reefer Terminal and continuing with the Vado Gateway Terminal, training APM Terminals staff on how to use and maintain the system and radios.

## SOLUTION

Recognising the need for scalability and interoperability between the two terminals, APM Terminals chose to deploy a Motorola Solutions DIMETRA Express TETRA radio communications system with TDMA technology for enhanced availability. The system operates on a UHF 450/470 MHz frequency band with 25 kHz channel spacing. APM Terminals has deployed one DIMETRA Express server and one MTS4 TETRA base station in the Reefer Terminal control room and the same combination in the Vado Gateway control room. The base stations have control channels to enable automatic switching between frequency channels and are each capable of providing up to seven simultaneous communications, between radio and radio or between radio and phone via VOIP. The base stations are linked by a fibre optic connection between the two terminals; this link, together with the back-up transceivers and hot-swap power modules, provides redundancy to ensure maximum system availability. Electronic Service has also deployed an antenna system compatible with triple space diversity in pre-specified locations around the port area to ensure optimal coverage. APM Terminals manages its radios and the system configuration and performance via its NMS (Network Management System) supervisory workstation with Smart Card Authentication access.

APM Terminals has set up numerous talk groups, including ship and yard operators and safety, security and maintenance teams; dispatchers use DIMETRA Express web-based applications to organise calls to or between these talk groups. APM Terminals Vado Ligure has equipped its staff on foot with MTP3550 TETRA portable radios, whilst installing MTM5400 TETRA DMO gateway/repeater mobile radios into over 50 vehicles, including gantries and cranes. These radios can also be used in direct mode in the cold stores or onboard ships, for example, via a DMO gateway, which improves in-building coverage. Accessories including PMMN4087 visor microphones and RLN4856 footswitches with remote PTT have also been commissioned, for ship-to-shore operators, enabling them to make calls on their radios hands-free to enhance safety.

## BENEFIT

The DIMETRA Express TETRA system with full redundancy has been installed at the APM Terminals to ensure fail-safe, mission-critical communications across the whole site, in any situation. The Motorola Solutions hardware is absolutely suited to the harsh environment and adverse weather conditions at the seaport, having been designed and built to withstand tough conditions and provide durability that helps reduce support costs. With ease of deployment and ongoing management being key to the project's success, the scalability features also ensure APM Terminals is able to progressively expand the system, as the Vado Gateway Terminal gets up to full speed; and APM Terminals knows it can build the added functionality a digital radio system offers, such as call recording and further personnel security features, into its solution in the future.

### Usage:

- Voice and data communications, including ship-to-shore
- Radio to radio group calls and individual calls, radio to phone over VoIP and radio to radio Direct Mode Operation (DMO) communications
- Options for enhanced functionality, such as call recording, emergency calling and man down, in the future

### Benefits:

- Network that is quick and easy to install and manage on an ongoing basis
- Flexible, scalable architecture so the system can be easily expanded, as the Vado Gateway Terminal comes up to full capacity
- Excellent, seamless coverage across and between the two terminals, with the option of DMO communications when needed
- Increased call capacity with TDMA technology
- Fully redundant system to ensure continual mission-critical communications in every circumstance
- Rugged, durable radios with IP65, IP66 and IP67 ratings, totally suited to the operating environment (adverse weather conditions such as direct sun, wind, water, salt, temperature between -30°C and +55°C)

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