



# EARLY WARNING SYSTEM SECURES SPANISH PORTS

COMBINED TETRA AND SCADA SOLUTION PROMOTES SAFER MARITIME TRADE



To safeguard the handling of potentially hazardous cargo along one of the Mediterranean's primary shipping routes, the Port Authority of Valencia (PAV) has installed a resilient, automated early warning system.

The solution has been integrated into a Dimetra IP Compact TETRA and Motorola MOSCAD/ACE3600 RTU network, covering approximately 80 kilometres of Spain's eastern coastline. It connects the three state-owned ports of Valencia, Sagunto and Gandia, which are managed and administered by the PAV. Strategically located near the Straits of Gibraltar, these ports play a pivotal role in the shipping of goods between America, the Mediterranean Basin and the Far East.

The Port of Valencia has a big impact on the state economy, generating more than 15,000 working places and over 1.1 billion Euros of revenue. During 2010, over 64 million tons of containerised cargo passed through its ports and the number of passengers has escalated to over 470,000 annually.

The Port of Valencia also provides vital road and rail connections for the distribution of goods to southern Europe and North Africa. As such, it is ranked among the top fifty container handling ports in the world.

## CUSTOMER PROFILE

**Company:**  
Port Authority of Valencia,  
Ministry of Development,  
Government of Spain

**Industry Name:**  
Ports and Harbours

**Motorola Solutions Partners:**  
ANFER Radiocomunicaciones (ANFER  
F.P.C., S.L.)

## Key Benefits:

- Fully integrated SCADA solutions into TETRA network
- Enhanced voice and data communications
- Highly reliable, scalable and robust
- Cost-effective: single network for voice and data

## Product Name:

- Motorola Supervisory Control And Data Acquisition (SCADA) system
- ACE3600 Remote Terminal Units and ACE3600 Front End Processor
- Dimetra IP Compact TETRA Network (3 sites, 3 MTS-2 with 2 carriers per site)
- Motorola Two-Way Radios

**“If an incident occurs, we must be able to react rapidly and efficiently. The integration of technologies such as TETRA and WiMAX with our SCADA platform is essential to provide accurate information in real time, enabling us to make the right decisions quickly. This is a robust and reliable solution for managing one of the most important Mediterranean ports.”**

Alfredo Canet Pechuan, Head of Maintenance and Facilities

## THE CHALLENGE

Considering its significant contribution to Spain's economy and the immense responsibility of administering traffic and cargo from some of the world's largest shipping lines, the Port Authority of Valencia must comply with stringent international standards and provide state-of-the-art facilities to ensure a competitive service.

While the type of cargo passing through its ports can vary from forestry products to perishables, construction materials, iron and steel products, the Port of Sagunto's proximity to a regasification plant, has resulted in the majority of its cargo being liquefied natural gas, which is flammable.

Thus, the potentially hazardous nature of some of the cargo handled by PAV necessitated a robust solution that could be integrated with its existing Siemens SCADA network to provide early warning in the event of an emergency, enabling a co-ordinated and rapid response across all three ports.

## THE SOLUTION

Distribution and application development partner ANFER deployed a Motorola system with approximately 100 MOSCAD ACE3600 Remote Terminal Units (RTUs) which perform a variety of functions including the remote monitoring and control of communication systems, navigation aids and access gates. The RTUs support common protocols and can therefore be easily integrated into non-Motorola SCADA systems.

A Dimetra IP Compact TETRA network provides secure, reliable voice and data communications for the harbour police and maintenance staff. It is connected by high-speed wireless point-to-point and point-to-multipoint broadband links which transfer images and data from surveillance video cameras and the RTUs to the Valencia Port Authority's control centre.

Each warning system RTU has a siren controller with audio amplifiers and speakers and is connected to an MTM800E TETRA radio. These radios are dust and water

resistant, with end-to-end encryption to protect confidential information, while their Multi Slot Packet Data capability provides real-time access to critical data.

The RTU sends commands to the siren controller to execute specific actions or collect status reports. This information is sent from the RTU to a Front End Processor (FEP) using the MTM800E radio's short data service. The FEP is connected directly to a Dimetra Switch which transmits the data across the TETRA network.

ANFER has developed an application which allows users to monitor the sirens using their TETRA radios and select locally stored, pre-recorded messages to be broadcast in the event of an emergency. The system also enables harbour police to transmit live voice messages from the sirens, via their TETRA radios.

## THE BENEFIT

The MOSCAD ACE3600 RTU supports a wide range of SCADA applications and its modular design allows for easy expansion. It is capable of operating over diverse communication networks and is sufficiently robust for outdoor installation, making this an ideal and flexible solution for an early warning system.

The integration of the ACE3600 with the PAV's Dimetra IP Compact TETRA network provides a consolidated solution for accurate and reliable voice and data communications, ensuring secure network operation and eliminating false alarms. By having real-time access to critical data, PAV can respond efficiently and swiftly to unexpected events, which is essential when handling potentially dangerous substances.

In addition to increasing safety and security, the solution has saved PAV time and money by allowing them to control the sirens automatically and upload pre-recorded messages remotely. This has resulted in more efficient use of their resources and has also enhanced the productivity of maintenance and emergency workers.



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