

## Case Study

# Barcelona Subway Relies on PowerTrunk TETRA LMR



### PowerTrunk handles TETRA communications in Europe's longest subway line

Barcelona Underground Line 9 has become the largest construction project ever undertaken by the Government of Catalonia in Spain.

Conceived as the largest subway line in Europe covering a length of 30 miles, Line 9 will link 51 stations situated in the most populated areas of Barcelona. The objective is to build an urban ring providing service to as wide an area as possible and also providing easy connections to other subway lines, railways stations, the airport and convention centers. This highly innovative and expensive project includes closed platforms and driverless trains with automatic doors.

By 2014, Line 9 is expected to handle as many as 90 million passengers per year utilizing 50 modern Alstom Metropolis Series 9000 trains. The project is seen as essential to ensure proper control, communications and safety for both trains and stations in one of the most cosmopolitan cities in the world.

PowerTrunk's parent company, Teltronic S.A.U., was selected to provide its NEBULA TETRA network, because of its integration capabilities and its unique features especially designed for transportation networks. The Teltronic S.A.U. NEBULA system is the same as the TETRA equipment sold in North America under the PowerTrunk-T brand purely for trademark reasons.

***"Having worked together for a number of years now, Teltronic has shown itself to be an outstanding provider of professional radio communications systems."***

**Lourdes Perez Argemi, TMB Radio Communications Project Manager.**



## CHALLENGE:

### Install a state-of-the-art LMR system for driverless trains

One of the main challenges for Teltronic has been to provide a complete solution capable of interacting with a number of train management sub-systems, such as the automatic train control system, the driver console and the advanced operational Control Center.

It is also important to point out that we are dealing with driverless trains. This means that data capability is an essential requirement for the communication system selected as the means for managing command messages from the Control Center. However, voice services are also vital to allow communication with the driver console in the case of manual operation of the train.

It is also of key importance to provide complete control over the different elements of trains and platforms such as power systems, platform doors, elevators, access control, rolling stock, fire detection, etc., resulting in a fully integrated transportation management system.

## SOLUTION:

### PowerTrunk's parent company, Teltronic S.A.U. selected for its specialized transport capabilities

The Government of Catalonia was determined to build on previous TETRA network investments, while meeting the specific, demanding technical and operational challenges posed by underground environments.

Teltronic is supplying the main switching and network infrastructure, complete on-board systems, end-user training, plus a host of value-added services. Teltronic is also providing some 36 site base stations (SBS), which will guarantee total communications coverage along the entire Line 9.

Because of the system's inherent complexity, the Teltronic solution has been divided into different parts.

- The remote control of integrated communications, which meets all technical requirements thanks to an advanced communication Control Center, allows individual and group voice calls with on-board terminals and handheld radios.
- The remote control of rolling stock allows commands and messages to be sent for communication between the train and the Control Center in case of alarm activation or remote commands.
- The interaction with the passenger information systems allows passengers to be continuously updated about train schedules, station information, incidents along the metro line, as well as other information such as advertising.

These services are supported by Teltronic's on-board RTP-500 TETRA radio via text messages with the control centers. The solution also includes interaction with intercom and public address systems by the driver or Control Center.

## BENEFITS:

### Outstanding solution backed by PowerTrunk's proven expertise

Over the years, PowerTrunk's parent company, Teltronic S.A.U., has accumulated a vast experience and proven expertise in network design for undergrounds and engineering know-how for system integration. The company is also well known for being able to combine basic TETRA services with innovative applications to satisfy individual customer needs, providing highly successful solutions for advanced transportation scenario requirements, such as automated subways.

#### Main Products

##### Infrastructure with 36 site base stations (SBS)

##### RTP-500 On-Board Radio Equipment

###### Communications Rack

- Soft migration from legacy systems to TETRA
- MVB or RS-485 Bus.
- Interface driver console and train PA system
- TETRA & MPT-1327

###### Console

- Handset with PTT
- Speaker
- Free-hands microphone
- Service indicators.
- Piezoelectric keypad
- Emergency call key
- LCD display
- Connector for ISSI code box
- Ease maintenance.

##### HTT-500 Handportable

##### DT-410 Dispatcher



#### About PowerTrunk Inc.

Headquartered in New York City, PowerTrunk Inc. is the wholly owned subsidiary of Teltronic® S.A.U. responsible for business development, distribution and customer support for Teltronic land mobile radio products and projects in North America. Teltronic S.A.U., with headquarters in Spain, has a direct commercial presence in over 25 countries throughout Europe, Asia, the Pacific Rim, the Middle East, Latin America and the United States. TMB purchased the Teltronic S.A.U. Nebula TETRA system, the same system sold in the Americas under the PowerTrunk-T brand for trademark reasons.

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