PowerTrunk
Part of the Sepura Group

Critical Communication Solutions

TETRA - LTE - DMR - P25 - CAD

sepura
Going further in critical communications
The Deployable Base Station (DBS) is a TETRA base station of reduced dimensions and easily transportable. Its design is based on the PowerTrunk MBS (Mast-Mounted Base Station).

The DBS can be easily deployed and installed in any place where coverage needs to be improved or network traffic capacity increased. In addition, the DBS may be of great use in the event of natural disasters, making it possible to replace damaged communications infrastructure quickly or to provide service to affected areas in which no communications coverage is previously available.

The DBS installation cost is reduced because it is ready to operate outdoors under the harshest weather conditions and does not need a shelter, requiring only an antenna mast and a link to the PowerTrunk-T System Control Node (SCN). Its weight has also been taken into account in the design, so that it can be moved by four persons.

The Portable Base Station (PBS) is a TETRA base station based on the PowerTrunk MBS (Mast-Mounted Base Station).

Its light weight (less than 40 kg.) and its design with wheels make it possible to transport by a single person.

With the same TETRA functionality as a standard PowerTrunk-T Site Base Station, it is the best option for scenarios in which it is necessary to temporarily expand network coverage, for example for concerts, sporting events, VIP visits, disaster response, etc.

It is prepared for outdoor use, making the PBS the optimal communications infrastructure solution to give the quickest and most efficient response as possible in emergency situations.

PowerTrunk’s Mast-Mounted Base Station (MBS) has been prepared to be easily installed on towers or wall-mounted with minimum cost. Its design does not require an additional unit at the base of the tower. These advantages considerably reduce installation costs, making the MBS a very economic system to deploy.

The MBS is a complete single-carrier TETRA base station. Its main goal is to improve coverage in shadow zones, or for where an indoor base station is not necessary or recommended. Its modular design allows it to be easily upgraded to two TETRA carriers with an additional unit. Furthermore, as the MBS is designed for outdoor operation, the system is able to work under the harshest climatic conditions.

The system includes a complete set of software tools to maintain the unit, even remotely. Intuitive and easy-to-use applications allow the modification of user profiles, system configuration, or monitoring network status from a friendly Graphic User Interface.

Designed for integration with the PowerTrunk-T system, the MBS provides an unrivalled set of TETRA services; unique when compared to any other similar unit.

Based on FCAPS industry standard, it provides an intuitive but powerful tool to configure, motorize and check the performance of all components of the TETRA network, including a unified subscriber management.
The HTT-500 portable radio is all about coverage, audio quality, and reliability. It is a high power TETRA radio for improved coverage, and also provides 1 Watt speaker audio power, 18+ hours of battery life, and offers the latest features including Bluetooth® connectivity, WAP browser, GPS module, and man-down capability. The HTT-500 is solid, tough, and durable, yet small and light-weight. Its intuitive graphical color interface is easy to learn and efficient to use even in the most demanding situations.

Unique in its class, the PowerTrunk MDT-400 mobile radio provides excellent coverage and versatility that makes a difference. Its 10 Watts of RF output power provides the best TETRA coverage available in the TETRA market by far. In addition, specialized off-the-shelf solutions and a remarkably flexible design allow the unit to be tailored for complex applications such as telemetry.

The DT-410 is a TETRA radio unit especially designed for desktop use, accompanied by a set of accessories that allow ergonomic operation. The DT-410 consists of a TETRA radio unit integrated in a desktop chassis. It is attractively designed and contains a PowerTrunk MDT-400 transceiver, high-power loudspeaker, and AC/DC power supply.

The STP9000 Series TETRA Portable Radio

Built to withstand the very harshest working conditions, the award-winning STP8X000 delivers unrivaled audio clarity and enhances safety for workers in hazardous environments. The full-keypad STP8X000 carries an IP67 environmental protection rating - continuing to work after submersion in up to 1m of water for up to 30 minutes - the full-keypad STP9000 boasts powerful audio, exceptional battery life and safety-enhancing features such as Wake-on-Alarm, which switches the radio on and initiates an emergency call with one touch of a button.

Haptic technology produces a physically detectable response to the press of a key and the ‘Twist and Zoom’ feature allows images to be viewed full-screen when the radio’s orientation is changed.

Tough, resilient and packed with features, the STP9000 helps you tackle the most arduous workday challenges. With IP67 environmental protection - continuing to work after submersion in up to 1m of water for up to 30 minutes - the full-keypad STP9000 boasts powerful audio, exceptional battery life and safety-enhancing features such as Wake-on-Alarm, which switches the radio on and initiates an emergency call with one touch of a button.

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With a class-leading 10 Watts of RF power, and the most proven gateway and repeater technology on the market, the SRG3900 TETRA mobile extends communication into areas otherwise beyond network coverage. An 8W audio drive provides loud, clear audio and - uniquely - the integral GPS module tracks both GPS satellites and the Glonass satellite network, working with the latest SBAS differential GPS support and CW anti-jamming technology to provide a greater degree of accuracy and security.

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With long battery life and features such as Man-Down - offering motion- and tilt-monitoring, local alarm and over-the-air alerting - optional Bluetooth and GPS, the STP8X000 significantly enhances worker safety. In addition, hot-swap technology allows Nexus-based headsets to be attached or removed in hazardous areas.
Public transport, as a basic mean of providing mobility for the general population, is a key factor in the development of our society. Buses, trams, subways, railways, and high-speed trains, including sophisticated driverless vehicles, need an efficient communications system which grows at the same pace as their own operations, all the while as they meet the service availability and safety expectations of their customers. For this kind of environment, POWERTRUNK provides a complete and professional solution adapted to the specific requirements of each project.

Voice

TETRA provides group calls, broadcast calls, emergency calls, calls between trains, etc., for communication among the main players in the transport environment: drivers, stations, depots, control center, passengers, and security and maintenance staff.

Furthermore, it allows integration with external communications networks (police, firefighters, etc.) in critical situations for emergency coordination.

Vital Data

Signaling systems are responsible for assuring comfort, punctuality, availability, and safety in passenger and freight transportation, managing driving operations of the trains.

POWERTRUNK radio solutions, focused to optimize costs, provide the data communication means required for these kinds of applications such as, for example, ETCS European standard for railways, CBTC systems oriented to underground or trams, or PTC systems, etc.

Critical Data

POWERTRUNK on-board equipment is responsible for obtaining the location information and sending such data to the control center (CeCo-TRANS), so that the position of all vehicles is known within seconds and can be presented over various types of maps and/or synoptic line displays.

Another common application is the monitoring and management of alarms and events which take place regarding the on-board equipment and other train subsystems.

On the other hand, the on-board equipment has also auto-diagnostic functions and is able to be integrated with Passenger Information Systems, which allows passengers to be informed in real-time about next stops, arrival times, and incidents, reducing traveling and waiting times for the users.

Video and Other Applications

The POWERTRUNK TETRA solution for critical voice and data communications is complemented with a broadband radio access layer which supports applications such as:

- Real-time video to monitor at the control center images from inside the trains
- Real-time video to display in the driver cabin images of the station as the train approaches
- File transfer between the control center and trains for various required operations
Professional LTE

A fully integrated TETRA + LTE infrastructure designed specifically for LMR users

DATA BECOMES CRITICAL

Will you rely on video transmission to the control center instead of a radio call in a critical moment? Probably not today, but this is about to change. PowerTrunk is leveraging its vast experience as a LMR supplier to provide a LTE solution tailor-made for Public Safety use, fully compliant with 3GPP standards, complemented with services considered as mandatory for mission-critical networks.

THE BEST OF TWO WORLDS...

Your narrowband TETRA or P25 network can be the first and most important building block of a brand new broadband LTE solution. Take advantage of proven availability and an unbeatable coverage footprint to incorporate the broadband network with an advanced control channel: your narrowband radio system. Your Network Operation Center will always know whether or not LTE coverage is present for remote users, and will be able to choose the best available wireless system for communication.

...IN A SINGLE NETWORK EXPERIENCE

PowerTrunk's broadband LMR solution is cost-effective. Your network will share intelligence and most components to operate together with the narrowband network. This will boost OPEX optimization, providing improved Return of Investment (RoI) over the operational years.

The system has been designed to maximize flexibility for deployment, both for small and large networks. Evolved System Control Nodes (eSCN) are able to provide full switching capability for small- and medium-sized networks, and a higher level switch (SIS) may be introduced for larger networks to optimize bandwidth in the different regions, which is critical for LTE systems.

eSCN: The Evolved System Control Node provides switching functions for both LTE and TETRA. In the case of LTE, it can feature all modules of the Evolved packet Core (EPC), or just a part of them in the case that a higher hierarchy switch (SIS) is available.

SIS: For large networks it is always advisable to implement a “divide and conquer” policy. This is especially important in LTE, where the required bandwidth is much greater than in narrowband systems. The Segment Interconnection Server enables connectivity between regional LTE + TETRA switches, providing greater reliability and bandwidth optimization.

SBS: The system features different kinds of base stations; TETRA-only Site Base Stations (SBS), or mixed TETRA + LTE base stations (eSBS), in different formats and capacities. An outdoor eNode B is also available, providing LTE-only coverage.

eNMS: One of the main advantages of the solution is that the LTE and TETRA systems share most of the same hardware, controllers, and routers, plus system management, and that their subscribers are managed by means of a unified network management software, the Evolved NMS.

Multi-Bearer Vehicular Consoles

It could be more than just a vehicle. It could be an extension of the command & control center. A gateway providing richer data to the control center staff while at the same time boosting the efficiency of officers in the field.

The PowerTrunk range of vehicular consoles has been designed to provide a single man-machine interface (MMI) for all wireless communication technologies installed in the vehicle, such as 3G, TETRA, P25, WiFi, WiMAX and/or LTE, all fully integrated together and accessible from a single touch-screen panel. When sending or receiving voice calls, database inquiries, or even video, the MVC units themselves can select the most appropriate technology available to employ in each instance.

The MVC-2000 offers advanced radio management, web browser, mobile CAD functions, mobile office applications, and GPS navigation, all totally integrated with the CeCoCo Series.

The MVC-6000 complements the functionality offered by the MVC-2000 with the addition of a powerful video management platform, allowing mobile video transmission, reception, and on-board recording and storage.
DMR Systems

Our flexible digital radio systems are able to grow with your requirements - from a small number of radios on a single site to nationwide networks with thousands of users. Fully ETSI-compliant, flexible and cost-effective, our DMR systems provide a smooth and gradual migration path from existing analog radio systems.

DMR Tier II - Linking up to 32 repeaters via a standard IP network expand the capability of your system, extend coverage into poor coverage areas and allow you to talk effortlessly to colleagues at remote locations, country- or even worldwide.

DMR Tier III - Link up to 1,000 sites and connect up to 50,000 users, our trunked controllers expand the capacity and coverage of your system. Accessible via a web session interface, our network administrator software package provides in-depth control of all aspects of your radio network, including absolute control of users remotely.

Dispatcher applications provide GPS mapping and call logging of radio users; configuration and management of terminals in the field; and comprehensive call management, all via an intuitive user interface.

Our robust, IP67 rated hand-portables offer integrated voice and data communications, our mobiles, up to 45W of RF power, improved noise rejection and enhanced error correction, giving crystal clear audio even in high-noise environments.

A wide choice of accessories enables personalisation and maximizes comfort.

SER8000
DMR Repeater

Providing a robust core for your DMR network, the SER8000 features up to 40W (UHF) and 45W (VHF) of power and an impressive array of features and functionality.

Designed to withstand shock and vibration to MIL-Standard 810G, this DMR Tier II repeater also offers easy installation, dual and mixed mode operation, IP interface and GPS connectivity.

Tier III Controller

The Tier III system is fully ETSI-compliant and its unique design allows different protocols to talk to one another seamlessly. Flexible and cost-effective, it provides the ideal solution for organizations migrating from analog to digital networks.

SEP8000
DMR Portable Radio

Secure, robust and reliable, the SEP8000 gives outstanding performance no matter how challenging the environment.

With full keypad and color screen, the SBP8000 is ideal for users who require a wide range of functionality. IP67-rated, it offers a rugged body, high-quality audio and exceptional battery life. The SBP8000 features an intuitive user interface and a comprehensive range of applications.

SEP8300
DMR Portable Radio

The SBP8300 is ideal for users who require a wide range of functionality. IP67-rated, it offers a rugged body, high-quality audio and exceptional battery life. The SBP8300 features a comprehensive range of applications.

SEM8000
DMR Mobile Radio

Available in both UHF and VHF versions, the SEM8000 is a fully-featured mobile radio. It offers outstanding audio quality, along with a range of applications including GPS and Lone Worker.
CeCoCo Series: Coordination and Control Center solutions

The CeCoCo Series provides comprehensive solutions for multi-agency and multi-function Computer Aided Dispatch. The high-performance, unmatched reliability, and easy scalability of the CeCoCo range of products allow different configurations to cover the requirements of different operational functions such as:

- Law Enforcement / EMS and Fire Dispatch
- 911 call centers
- Intelligent Transport Dispatch
- General purpose CAD

The CeCoCo design allows the system to exceed the requirements of a control center:

- To process and resolve incidents efficiently, achieving minimum response time.
- Resource optimization allows reducing considerably time and displacement costs.
- The communications integration among resources, operators, and even other organizations makes coordination easier, providing fast and efficient response to the public.

Furthermore, CeCoCo solutions are highly customizable and are optimized for use with the most advanced radio technologies available today (such as P25 and TETRA). Additionally, the CeCoCo series also provides interfaces with legacy radio systems such as MPT-1327 or analog radio, providing a cost-effective migration plan or enabling interoperability with other radio systems.

Intelligent Workflows

Time is vital and every second counts. Quick action by communications center staff to dispatch responding units to an incident can be matter of life and death. Integration of radio dispatch functionality is an effective way to save valuable time, but it needs to be done correctly. Staff are not necessarily radio experts and they also shouldn’t be overloaded with several different applications to do their job. Intelligence in the command and control center can guide personnel though incident resolution workflow and minimize the number of actions required to be taken. That’s what we call Intelligent Workflows.
Meeting diverse user needs

The suite of applications enables you to take full advantage of real-time information available from the field and back-office, including picture, location and textual information delivered and managed by the connectivity platform for end-to-end communications.

Our applications provide tremendous flexibility to fulfill your operational use cases with business logic customized to your requirements, particularly in Public Safety, Government and Commercial markets.

Deploying integrated solutions

Our portfolio of applications consists of highly configurable modules for:

- Resource location - automatically tracking your vehicles and people (AVL/APL)
- Task messaging & dispatch - intelligently allocating mission critical & routine tasks to your field workers
- Database querying - enabling your mobile workers to gain instant access to remote information
- Image messaging - rapidly delivering visual and textual alerts to the point of need for locating targeted people, and apprehending & managing critical incidents

Reporting - electronically submitting information and eliminating the need for your staff to complete paper-based forms and carry out subsequent visits to the office.

These proven application components can also be easily configured to operate together in an integrated manner as a single all-embracing solution, deployable in your control room and/or on your field worker devices, e.g., for comprehensive mobile command & control.

Critical information is instantly presented to your operational users, putting control at their finger-tips and enabling efficient execution from the field and optimal decision making in the control room. You will benefit from greatly optimised field force efficiency, improved safety & security and enhanced communications.

Enabling multiple user operations

These solutions also present you with the possibility to fulfill multiple agency information sharing, enabling synchronized joint operations involving different user groups, for example, personnel from counter terrorism, police, fire & rescue authorities etc. can be dispatched quickly enough to enable successful inter-agency operations during mission critical deployments.

SDM (Synchronous Data Manager)

The success of a TETRA system is based on the correct adaptation of radio means to the specific needs of the customers in terms of voice and, above all, data transmission.

For example, the incorporation of GPS modules into TETRA subscriber radio terminals means that the volume of positioning data significantly increases the traffic load of the communications system. At the same time, other users such as utilities and oil & gas companies have thousands of metering points, so they hope to use the new TETRA system to send their readings to centralized posts. This massive incorporation of data in systems initially designed to support voice applications may, on occasions, affect the normal operation of the system.

With SDM (Synchronous Data Manager), PowerTrunk presents a solution that allows making use of the full power of TETRA for massive periodic data transmission.

PowerTrunk has developed an advanced procedure of optimized polling that allows elimination of random access in synchronous transmission of data to the system. The system reserves a certain percentage of the slots for transmitting data so that units do not compete for resources. In addition, the system synchronizes the position requests in such a way to minimize queues, allowing simultaneous polling in each of the system control channels.

The optimized polling method integrated in the PowerTrunk-T system allows reducing up to 60% of the channels that would be necessary compared to an asynchronous solution.

Video

In conjunction with TETRA technology, PowerTrunk offers various video solutions.

Its range of vehicular consoles has been designed to provide a single MMI interface for different wireless technologies. 3G, TETRA, P25, WiFi, WiMAX and/or LTE could be integrated together. Whenever a user wants to send video, perform a group call, query a database, or fill in a report, the MVC unit will choose the most suitable wireless technology available for each case.

The MVC-6000 offers advanced radio management, web browsing, mobile CAD functions, mobile office applications, and GPS navigation, and complements the functionality with a powerful video management platform, with enhanced recording capability and ability to receive and transmit video, just to mention a few features. And everything completely integrated with the PowerTrunk CeCoCo Series control center applications.

In the transport segment, the PowerTrunk TETRA solution for critical voice and data communications is complemented with a broadband radio access layer which supports applications such as:

- Real-time video to monitor from the Control Center images taken from inside the trains
- Real-time video to display in the driver cabin images of the station as the train approaches.
- File transfer between the Control Center and trains for various required operations.

E2EE (End to End Encryption)

PowerTrunk E2EE is based on a tamper-proof hardware module. It is a high level solution that automatically destroys the stored security parameters when tampering is detected.

It provides all the encryption, decryption, key management, and key storage services required for use in a TETRA communication system and meets the security requirements for cryptographic modules standard from the National Institute of Standards and Technology (NIST). PowerTrunk provides a complete E2EE solution composed of E2EE TETRA terminals, E2EE infrastructure gateways, E2EE voice recording, and E2EE key management tools that manage the cryptographic features of the network.