ElettraSuite VS 3000-3

Mobile TETRA communications
Everywhere !

tetra solutions

peripheral terminals and accessories

ADAPTANET
IP solution

ELETTRA
SUITE

SELEX
Communications
A Finmeccanica Company

ElettraSuite VS3000-3 is the versatile latest version of the proven mobile radio family designed for professional users in all market segments. Its full interoperability within all TETRA networks makes it the best choice for your mobile communications.

ElettraSuite VS3000-3 mobile radio unit combines the powerful performance and high quality of the VS3000 radio unit with the excellent flexibility and ease-of-use of the new front panel (FPG3).

Police forces, ambulances, utilities, coastguard and airport authorities can create bespoke radio installations, selecting the appropriate front panel to meet their specific needs. Near or remote, for indoor or outdoor environments, such as motorcycle or patrolling boat, easy installation kits are available.

Thanks to **IP67 level protection**, the front panel guarantees operational effectiveness in extreme environmental conditions, maintaining excellent visibility in any light conditions, with easy and intuitive menus and a large keypad for use with gloves.

VS3000-3 radio unit has dual-mode functionality that allows a soft migration from **conventional FM to TETRA** communications, saving cost and supporting operational effectiveness.

Data transmission to 4 slots, Repeater and Gateway features, high levels of security and the flexible use of wired and wireless (Bluetooth®) accessories make VS3000-3 mobile radio the perfect and complete answer for mobile communications requirement.

FUNCTIONS AND FEATURES

Easy migration from analogue to digital

Many organizations and businesses can't afford to completely replace their existing infrastructure. VS3000-3 is unique in the market in its ability to operate in both analogue and digital modes, enables a smooth and planned migration, without disruption and guaranteed interoperability with legacy technology.

Best for Data applications

The VS3000-3, 4 slot data transmission provides maximum TETRA data rate capacity and supports a wide range of data applications including file transfer, database interrogation and image transmission to increase the timeliness and efficiency of your operation. Simultaneous voice and data transmission can be carried out using different timeslots.

Communicate always, with or without network

The mobile radio unit allows the customer to operate in presence or absence of the network via Repeater and Gateway modes. In Repeater mode, when terminals communicate in DMO, VS3000-3 extends the area of communications. The Gateway mode makes a bridge between TETRA terminals in DMO outside the coverage and other users within the network, to extend the network and create a new cell widening the communications. The operations modes and the switching between them (TETRA mobile; Repeater and Gateway) can be easily and quickly achieved via the menu or specific keys. To monitor the traffic over the network, the VS3000-3 can also provide a call monitoring function when operating in either Repeater or Gateway modes.

Efficient management of the resources

VS3000-3 radio incorporates the latest high sensitivity GPS technology, offering an accuracy of a few metres for tracing workers or operational crews.
To optimize resources, the device periodically sends accurate position data to ensure assistance in all situations. The transmission protocol for the location data over the air-interface accords with the **ETSI LIP standard**.

Communicate in security!

Eavesdroppers are always a potential threat. In order to protect the critical speech/data communications and communicate in security, VS3000-3 in TETRA mode supports a high level of security. It adopts the **Authentication, End-to-End (E2E) encryption and Air-Interface dynamic key encryption**. End-to-End supports specific user algorithms.

Tailored for any interfaces

The versatility of VS3000-3 offers customers the ability to connect a wide range of accessories and external devices for easy maintenance operation and connectivity in any situation.
The VS3000-3 radio is provided with a **Bluetooth® for PEI** interface. A simple connection allows the transmission of telemetry data or remote control of alarms. The built-in Bluetooth® is also used for a wide range of wireless audio accessories, such as headset for use under the helmet in motorcycle configuration, or third-party devices.
The front panel (FPG3) has two external interfaces in front side: a USB port, for software updates and a 12-pin connector for wired audio accessories.

Resistant for any environmental conditions

VS3000 radio has a sturdy and durable aluminum die cast structure, compliant with most military standard environmental conditions for shock, vibrations, **dust and water (IP 67)**. A special tamper-proof version is available. The FPG3 front panel has a durable die cast aluminum black structure compliant to IP67 for secure installations on motorcycle or patrolling boat. The front connector for accessories protects from water and dust. The large keypad is easy to use. Operations are intuitive and clearly shown in a large display highly visible in any light conditions.
The radio supports multiple languages, including Arabic, Cyrillic, Chinese and many others.

FPG3 management panel

Group Number 1 Selected

ElettraSuite VS3000 mobile unit

SELECTION OF THE MAIN TETRA FEATURES SUPPORTED

- Repeater and Gateway
- Types of calls: individual, group, broadcast, priority and emergency (pre-emptive)
- Short Data Service (status/text messages)
- Up to 4 time slots transmission data calls
- Single and multi slot Circuit and IP Packet Data services
- PABX, PSTN, PDN interconnections
- Direct Mode Operation (also with Repeater and Gateway)
- Security: End-to-End Encryption and Dynamic key "Air interface Encryption"
- Location Services
- TETRA Supplementary Services

Data storage capacity

- 1472 TMO/DMO talk groups
- 1000 static entries in the phone directory
- 200 phone book entries
- 10 predefined or user defined text messages
- 72 predefined status messages
- 20 recent individual calls
- 10 recent received messages.

Other DMO/TMO functionality's

- Pre-emptive Priority calls (including freeing of resources)
- Short Number Addressing
- Calling Line Identity Presentation
- Talking Party Identification
- DTMF Dialling
- PIN code access
- MS Authentication
- Tamper Protection Option
- Phone Book
- Call History
- Transmit Inhibit (TXI)
- Call authorized by dispatcher
- Priority Group Scanning
- Ambience Listening

Repeater Services

- Individual voice calls (with or without presence checking)
- Group calls (also to open group - late entry)
- Emergency group call
- Call pre-emption
- SDS messaging
- Calling Party Identification

Gateway Services

- Individual and group calls (in either direction)
- Emergency group call (in either direction)
- Call pre-emption of existing call (in either direction)
- Late entry
- Calling Line Identity presentation
- Talking Party Identification
- Monitoring of other gateways

PUBLIC SAFETY AND LOCAL GOVERNMENT

Ensuring security and reacting to emergencies depends on reliable and immediate communications. Effective communications are vital for key activities at incident scene such as resource coordination, people control and operational support. The versatility of VS3000-3 allows the customer to choose the best response in every situation, such as in a car, motorcycle, van, patrolling boat, or in a fixed station as dispatcher.

Key features
- Individual half and full duplex calls to TETRA and PABX/PSTN users
- Group calls (with open channel and late entry)
- Status and SDS messaging
- Concurrent services management capability for voice calls and packet data transmission
- Air Interface Encryption TEA1/TEA2/TEA3
- E2E Encryption (IDEA and AES algorithm)
- DGNA Dynamic Group Number Assignment
- Easy installations

Applications
- Police forces
- Local municipalities police
- Ambulances and civil protection
- Military for non-tactical applications

TRANSPORTATION

The transportation sector encompasses both public transport and the movement of goods. In public transport, VS3000 equipment is the ideal solution for voice communications and data transmission, especially in driverless systems. For private transport, traceability of vehicles and goods - for example in harbor cargo areas or in airports for logistics operations (e.g., luggage movement) - is supported.

Key features
- Packet Data or Circuit Data (single and multi-slot)
- Status and SDS messaging
- Integrated GPS for location resources
- Emergency call

Applications
- Mass transit transportation; bus, tramway, metro, driverless metro etc.
- Private companies of freight movement in port, airport

COMMERCIAL AND INDUSTRIES

Companies operating in oil & gas, utilities, power and energy sectors increasingly require secure and reliable voice and data services. Similarly, the real-time management of operational crews, often distributed in a wide area (e.g., along pipelines or in refineries) needs to be supported to ensure safe resource optimization.

Key features
- Status and SDS messaging
- Packet Data or Circuit Data (single and multi-slot)
- Comprehensive user safety features
- Integrated GPS for safety and efficiency
- Emergency call

Applications
- Oil & gas plants (extraction, distribution)
- Companies for power distribution (power electricity, water, etc.).

Outdoor or indoor use ?
Installation versatility to meet Professional users needs

SELEX Communications has developed these new rugged and versatile management panels for organizations operating in mission-critical situations, ensuring communications in all environmental conditions.

Multiple kits allow the FPG3 to be mounted in various vehicles such as motorcycles or patrollling boats. This version is tested to IP67 for dust and water-resistance for outdoor environments.

In indoor environments, VS3000-3 radio is used as a fixed station to create a simple radio station with low costs management for the customer.

FPG3 management panel for in-vehicle or desktop installation

FPG3 management panel for outdoor installation (IP67)

In-vehicles installations

IN-CAR USE

The standard "vehicular" configuration includes following devices:

- Radio unit VS3000 installed into the luggage space (or other position inside the vehicle);
- Management panel FPG3 installed in the dashboard;
- Microphone with PTT key or handset "telephone like";
- Loudspeakers;
- TETRA antenna;
- Connection cables.

This typical configuration allows users to operate using all TETRA main functionalities and the Repeater and Gateway modes. Options include the integrated antenna (TETRA and GPS) and the hands-free kit.

MOTORCYCLE AND PATROLLING BOAT

Motorcycles or boats are tough operational environments for radio equipment. Dust, rain, solar irradiation and vibration are encountered everyday on these vehicles. Thanks to high level of protection of the radio (IP54) and remote management panel (IP67), secure communications are always available while using VS3000-3.
A variety of cable kit and anchorages can be installed on motorcycles, patrolling boats or other vehicles.
The typical installation provides a waterproof box mounted on the rear of the vehicle containing VS3000 radio and the management panel installed behind the driver (on the dashboard or handlebars). Two actions can be undertaken - volume adjust and PTT. Buttons are contained in a small device mounted on the left handlebar.
All TETRA functionalities are displayed to the driver on the FPG3 panel and the easy to use keypad can be used whilst wearing gloves. Speech is possible with a waterproof microphone installed near the FPG3.
The same general configuration can be used on a boat.

Indoor use

FC3000-3 FIXED STATION

Often customers need to save costs in network deployment through low-cost solutions. SELEX Communications proposes a desktop solution named FC3000-3, helping our customers to implement small radio office applications, such as emergency response control rooms, event management, small police offices or - in a cargo port environment - crane operators communication posts

FC3000-3 is fitted in 19" desktop shelf that contains:
- VS3000 TETRA radio,
- 110-220 VAC power supply,
- FPG3 management panel.

FC3000-3 supplies the following dispatching/administrative services:
- Call management (all types of voice and data call) constrained by the fact that the radio only allows one active call at a time.
- Pre-emptive priority (e.g. emergency) calls.
- Dynamic group management.
- Access to the Phone Books inside the fixed-radio.
- Group scanning priority management.
- History folders for voice calls, messages and alarms.

In order to support data services using a personal computer as dispatcher station, FC3000-3 has two PEI interfaces on the rear panel. Additional software for PC Windows platform is available.

The station is also provided with the interfaces for downloading crypto keys, managing a remote control panel, external audio accessories, external audio recording, remote emergency key and a PTT foot pedal, Bluetooth® antenna.

MAIN COMPONENTS AND ACCESSORIES

Mobile units

- Installation kit for FPG3 (vehicular and motorcycle)
- Installation kit for VS 3000
- FPG3 remote cable (vehicular and motorcycle)
- Antennas: 380 to 430, 410 to 470, 806 to 870
- GPS magnetic antenna
- Hanger for GPS antenna installation (if a metal surface is not available)
- Integrated antenna (TETRA and GPS): 380 to 430, 410 to 470 and 806 to 870.

Accessories

- Loudspeaker
- Microphone with PTT
- Handset with PTT with magnetic hook

- Hands free kit
- Kit for key downloading
- Programming cable
- Data cable
- Remote wireless kit
- Motorcycle kit (gooseneck microphone with PTT and volume)

FC3000 accessories

- Foot PTT
- Serial extension cable
- Rear Boot Plug
- Desktop Microphone
- Handset assembly
- Microphone with PTT

EXTERNAL INTERFACES

VS3000 Radio

- RS232 data terminal Interface (PEI) ETSI EN 300 392-5
- Extended AT Command Interface
- PEI on Bluetooth®
- GPS antenna connector

FPG3 management panel

- Remote front panel connector
- USB port

TECHNICAL DATA

VS3000 radio unit	
Equipment type:	TETRA (TErrestrial Trunked RAdio) mobile radio
Frequency bands:	• 380 to 430 MHz • 410 to 470 MHz • 806 to 870 MHz
Functional Modes:	Trunked Mode, Direct Mode, Direct Mode Repeater, Direct Mode Gateway

RF Power class:	• TETRA: - class 2 (10 W, 40dBm) ETSI EN 300 392-2
	    - class 3 (3 W, 35dBm) ETSI EN 300 392-2
	    - Adaptive power control supported
	• Analogue mode: 10W

RX Class:	Compliant to ETSI ETS 300 392-2 / 396-2 Class A + B
Channel spacing:	25 kHz
Power supply:	13,2 Vdc (+10.8 to 15.6 Vdc in extreme conditions)
AF Power:	8W @1 kHz into a 4 Ohm load
Internal GPS:	• GPS antenna embedded in TETRA antenna • Protocol: ETSI LIP • 20 channels • -155 dBm acquisition sensitivity • -159 dBm tracking sensitivity • Position accuracy 5 m
Mechanical features	
VS3000 radio:	• Dimensions (HxWxD): 48 x 172 x 188 mm • Weight: 1850 g (transceiver)
FPG3 management panel:	• Dimensions (HxWxD): 185 x 58 x 50 mm • Weight: 460 g
Environmental conditions	
Climatic condition:	ETSI EN 300 019-1-5 Class 5.1 (-25° to +70 °C)
Operative temperature:	-25° to +55°C (VS3000), -25° to +60°C (FPG3)
Water and Dust protection:	• VS3000 radio: IEC 60529 classes IP66 and IP67 • FPG3 front panel: IEC 60529 class IP54 (vehicular-fixed) IP67 (motorcycle-boat)
Mechanical conditions:	• ETSI EN 300 019-1-5/6 classes 5/6 M3 & IEC 721 3-7 • MIL STD 810 D/E - Methods 516.4/5 procedures I/V • MIL STD 810 D/E - Methods 514.4/5 procedure I category 20
EMC	ETSI EN 301 489-18
Storage temperature:	-40°C to +70°C (VS3000), -40°C to +85°C (FPG3)
Transportation temperature:	ETSI EN 300 019-1-2 class 2.3

TETRA ❋Bluetooth®

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