ElettraSuite RS3000
TETRA Transceiver for Railways applications

ELETTRA
SUITE

radio terminals

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SELEX
Communications
A Finmeccanica Company

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Based on its long experience in professional mobile communications, SELEX Communications is a supplier of solutions to meet the need for reliable communications for the transportation of passengers and freight.

SELEX Communications is involved in both the Railway and Mass Transit environments through specific technologies and related products in order to satisfy the applications required from these markets.

A Member of the international standard organization ETSI, SELEX Communications is a leader in the development of wireless solutions for railway operators, providing optimized, convenient and reliable solutions for secure communications along railway tracks.

SELEX Communications was the first to design a product that integrates the transmission capacity of TETRA with a PC in a single rack via a SELEX Communications proprietary Message Oriented protocol. SELEX Communications stands for excellence in innovative solutions.

OVERVIEW

The **ElettraSuite RS 3000** is radio communication equipment designed to operate in Railway environment, providing train to/from ground connectivity. Thanks to its extreme flexibility, it can operate with a transceiver **based on ETSI - TETRA standard or GSM-R EIRENE standard**.

TETRA is the native operating mode and **GSM-R is available on demand**.

RS3000 consists of a one piece, die-cast aluminium case (with a finned surface acting as a heat-sink) that contains the boards with the circuitry for signal processing for both transmission and reception, the embedded PC for system management and the signal/power interface.

The ElettraSuite RS 3000 includes an embedded PC that controls the radio module and is designed for data reception/transmission in accordance with the requirements of the TETRA communication system.

The ElettraSuite RS3000 product comprises two elements:
- *A TETRA Radio Module.*
- *A Radio Software Interface (the RS3000 Server).*

The Radio Software Interface exports an Application Programming Interface (API) for the realization of external client applications on the RS3000.

The ElettraSuite RS-3000 with its rich feature set is the ideal solution to interface to external equipment **(i.e. GALS-R)** and to extend TETRA services to users in railways, for example during shunting operations.

ElettraSuite RS-3000 is comprised of two LRU's (Line Replaceable Units) and one radio unit with a dedicated mounting tray.

Repeater and Gateway

The ElettraSuite RS-3000 can operate as a TETRA DMO Repeater and a TETRA DMO Gateway allowing network coverage to be extended on demand.

Acting in repeater mode between TETRA terminals working in DMO, the RS-3000 will increase the range of DMO communications. Whilst in Gateway mode, RS-3000 acts as bridge between TETRA terminals working in DMO mode and other TETRA users within the network coverage (TMO mode), extending the coverage of the network itself.

Packet Data

ElettraSuite RS-3000 supports a high data rate capability both multi-slot Circuit Data and IP Packet Data, to allow easy fast file transfer, messaging, database interrogation or update and image/video transfer applications.

Security

ElettraSuite RS-3000 provides a set of embedded security features, including Authentication, "Air Interface Encryption" and "End-to-End Encryption (E2E)", which offers a high degree of communications security and protects critical speech and/or data communications from potential eavesdroppers.

The radio can operate with a number of standard, or user-defined, E2E encryption algorithms.

Embedded GPS

The ElettraSuite RS-3000 transceiver includes a 12-channel high sensitivity GPS receiver.

MAIN FEATURES

- Extreme working temperatures (-40 degrees C)
- Easy to install (using the mounting tray)
- Equipment all integrated in one case TETRA radio, GPS module and PC
- Direct access via LAN plus COM interface
- Support of RDS server TETRA
- Developed on Linux platform
- The equipment can be managed without the front panel MMI

ACCESSORIES

- Mounting tray;
- 110/24 VDC DC-DC converter for vehicles providing 110 VDC battery voltage;
- 410 to 430 and 450 to 470 MHz 50 Ohm train antenna.

TECHNICAL DATA

Mechanical aspect

Dimensions:	• 62x215x380mm WxHxD (tray included, handle not included)
	• 60 mm free space for handle and connectors
Weight:	5 kg

Electrical characteristics

RF Power:	3 W (Class 3) with TX power control
Frequency band:	410 to 470 MHz
Power supply:	24 VDC (powered by DC/DC accessory)
Modulation:	$\pi/4$ DQPSK (TETRA standard)
Carrier spacing:	25 kHz
Frequency offset:	TETRA standard with 0, 6.25, 12.5 kHz
RF Performance:	ETSI EN 300 392-2 compliant (TETRA standard)

Environmental conditions

Operating temperature:	from -40 °C to +55 °C
Storage temperature:	from -55 °C to +65 °C
Reference standard:	GOST 16019-2001 (B5, group 2)

Functional characteristics

TETRA modes	• TMO
	• DMO Basic
	• DMO Repeater
	• DMO Gateway
Internal option	GPS RX Module
External interfaces	• RF (TETRA) 50 Ohm TNC/F
	• RF GPS 50 Ohm SMA/F DC +5V (option)
	• Ethernet 10/100 BaseT RJ-45
	• I/O D-sub/F 25 pin
	• USB 2.0 maintenance embedded PC
	• DC IN 24V 3-pole circular connector