ElettraSuite BS Plus
New compact TETRA Radio Base Station

ELETTRA SUITE

SELEX Communications
A Finmeccanica Company

ElettraSuite BS Plus - New compact TETRA Radio Base Station

DESCRIPTION

The new **ElettraSuite BS Plus** is a powerful and high quality family of TETRA Base Stations, designed to satisfy the most demanding requirements of professional users. Its main strengths are:

- Extended coverage
- Compactness
- Highest reliability
- Energy Saving Suite
- Comprehensive set of fall-back mode features
- Future proof design

Extended Coverage

The SELEX Communications BS Plus offers superior radio coverage performances, allowing our clients to reduce the number of base stations in a network with a significant CAPEX and OPEX saving.

High power TRX

Transmitters used in the BS Plus are rated for 65 W continuous RF power. This unique on the market feature guarantees an enhanced link budget, especially in systems designed for vehicular radios.

Superior RX sensitivity

BS Plus sensitivity is far more than required by the TETRA standard and helps to increase the uplink performance. The direct benefit is enhanced coverage in systems that use dominantly hand held terminals. Despite sensitivity values provided by other vendors, our measures have been taken in typical operating conditions at the antenna, according to EN 300 394-1, including filters and duplexers attenuation. This ensures that theoretical and practical performances are the same.

3 way diversity

Where the site allows for a complex antenna solution the 3-way diversity of the BS Plus gives an additional push to increase the radio coverage.

Compactness

Compactness is a key point in today's typical radio sites that are often crowded. The BS Plus family consists of two basic models, supporting up to 4 carriers in the same 400 mm depth rack and with different heights. For solutions from 5 to 8 carriers, a double rack option is available, with one single common control channel. Installation and maintenance flexibility is ensured by complete front cabinet access.

Highest Reliability

Reliability is a key requirement for mission critical communications. BS Plus offers complete redundancy of all modules with no single point of failure. The intrinsic capabilities to use redundant backhaul links with incorporate drop insert and rings management function allow a convenient design for high resilience network architectures.

Energy Saving Suite

BS Plus adopts an innovative Energy Saving Suite to increase the battery life during blackout. This allows a capacity reduction of the energy back-up system with the direct advantage of CAPEX and OPEX reduction.

A beneficial side effect of the Energy Saving Suite is the reduced electromagnetic pollution, as the transmitters are on air only when needed.

When TETRA traffic is low, the base station can be configured to automatically switch off one or more carriers, in a complete user transparent way. With traffic rising over defined thresholds, the system is gradually restored. In case of long term power troubles, alarms connected to the Uninterrupted Power Supply (UPS) can be set to further minimize energy consumption and to extend the life time.

Comprehensive set of features in fall-back mode

In case of a network fault, or in case of a single site deployment without a switching node, the BS PLUS automatically switches to fallback mode, supporting the most comprehensive set of services for voice and data communication available under the coverage of the base station.

In fall back mode BS Plus provides users, within the radio coverage, with the following services:

- Half and full duplex individual call (both voice and data transfer);
- Group call (both voice and data transfer);
- Emergency calls;
- Short data message service;
- Multi-slot (up to 4 slots) circuit mode data

Future Proof

BS Plus is ready for upgrade to **TEDS (TETRA Enhanced Data Service)** with hardware design compliant to TEDS standard specifications.

The TEDS standard has been developed to supply professional users with high-speed IP packet data services, with TETRA 1 backward-compatibility. It has been optimised for efficient use of PMR frequency bands with expected performances related to the available channel bandwidths. The system is fully ROHS compliant, anticipating law requirements.

BS Plus is specifically designed in order to support a high level of performance on a 24 hours a day basis, also in case of failure of some of the internal modules or of network infrastructure. The high level of fault tolerance is obtained due to the following peculiar features of BS plus:

- Modular architecture;
- Redundancy of major modules and main power supply;
- Capability of self-reconfiguration in case of failures;
- Capability of working in a stand-alone mode without the link with the SCN;
- Capabilities of working also without main power supply (220 VAC).
- Status monitoring and fault management of internal modules;
- Alarms report to BS Plus Local Terminal;
- Events and alarms log;

- Capability to collect site alarms and to drive actuators;
- Local maintenance and configuration operations;
- Diagnostic testing activities, using specially devoted tools, to identify potential anomalies within the equipment.

BS plus 2 carriers

BS plus 4 carriers

TECHNICAL CHARACTERISTIC

Power class:	(Hybrid configuration, max 2 carriers per antenna), Class 2 (EN 300 392-2) 44 dBm (25 W), ±2 dB according to ETSI EN 300 394-1 at antenna connectors
Power range:	10 dB (2 dB steps)
Frequency band (MHz):	**BS-400**: 380 to 400 • **BS 350**: 350 to 370 • **BS-430**: 410 to 430 • **BS-470**: 450 to 470 • **800** MHz
Sensitivity:	• Static: -118 dBm • Dynamic: -111 dBm
Duplex spacing:	10 MHz
Diversity:	3 ways
Power supply:	- 48 VDC nominal (positive ground), range -44÷-60 VDC
Bandwidth:	5 MHz
Dimensions:	• 2 carriers: 900 mm x 600 mm x 400 mm • 4 carriers: 1300 mm x 600 mm x 400 mm
Environmental aspects:	• Operation: ETSI ETS 300 019-1-3, class 3.1E • Storage: ETSI ETS 300 019-1-1, class 1.2 • Transportation: ETSI ETS 300 019-1-2, class 2.2 • EMC: Compliant to ETSI EN 301 489-18
Safety:	CENELEC EN 60950
Power consumption:	• TSU-200: 200 W max. at 48 V DC for redundant configuration • TTU: 300 W max. for each TRX, at 48 V DC
Synchronization:	Internal GPS option available
Other:	Compliant to RoHS Directive
Interfaces:	• Up to 8 G.703 2 Mbit/s • Up to 4 Ethernet 10/100/1000 Mb • Up to 2 optical fiber (different versions available) • Up to 3 Fast Ethernet • Up to 2 serial RS232 • Up to 24 alarm input s • Up to 8 actuators

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Printed in Italy. e-P-IT-176/V1/07/Y