

TETRA

ElettraSuite SCN Plus  
TEDS ready for next generation networks

ELETTRA  
SUITE

switching & control nodes



ELETTRA  
SUITE



SELEX  
Communications  
A Finmeccanica Company



## EletraSuite SCN Plus TEDS ready for next generation networks

### OVERVIEW

The **EletraSuite SCN Plus** is the new SELEX Communications' Switch & Control Node (SCN) product for TETRA networks, with an architecture designed to provide the performance, availability, and reliability needed to support mission-critical communications in the most demanding environments.

The SCN Plus provides switching, call control and gateway functionality. It can manage a range of systems, from a single base station (BS) to more than a hundred, with complete optional redundancy, all in a single rack.

More SCN's can be connected together to provide regional/national networks and increased capability.

As well as the typical star topology, with each BS linked directly to the switch, the SCN Plus implements a new algorithm for ring deployment without the need for external equipment, thereby increasing resilience through automatic recovery of faulty links.

A modular and fault-tolerant architecture supports easy expansion, both in terms of performance and functionality.

SCN-Plus also ensures TETRA performance with a state-of-the-art IP core, supporting both circuit and packet switching for VoIP interoperability, ready for migration to **TETRA Enhanced Data Service (TEDS)** with a software upgrade.

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 number of channels.

The interaction between the network management system (NMS) and the network element agent follows the standard paradigm described in the ITU-T TMN, using CORBA.

### CAPABILITY

The EletraSuite SCN Plus node offers:

- Call management
- Resource management
- Mobility management
- Short data service (SDS)
- Circuit data
- Packet data

The SCN Plus is able to manage individual calls (half-duplex and duplex), group calls, emergency calls, circuit and packet data transmission (up to 28.8 kb/s with 4 time slots), SDS and all of the services provided by the TETRA standards.

The node can operate as a telephone gateway for full duplex calls to PABX/PSTN networks, using both Primary Rate (PRI)

and 4-wire+E&M interfaces, and can support PSTN/ISDN subscribers in broadcast and group calls.

The SCN Plus uses a distributed switching capability with an Ethernet/IP interconnection bus and integrates a state-of-the-art networking IP platform.

IP connectivity can be provided not only for internal switching unit communication but also for external connectivity. In this case, the SCN Plus is able to schedule packet traffic based on Quality of Service and to provide node connectivity with an external IP network.

The SCN Plus hardware can manage both voice and data traffic in a packet-switched network, achieving true all-IP connectivity.

The SCN Plus supports a "**Disaster Recovery (DR)**" capability - it is able to recover its own features and functionality after a critical event has occurred to one TETRA switching node.

In TETRA networks, DR refers to both this capability and the set of procedures that must be undertaken to recover all network elements with their features and capabilities.

DR is applicable in multi-node networks as a means to provide resilience between a home-switching node (redundant or not) and one regional-switching node (redundant or not), configured as the "Back-up Home".

## MAIN FEATURES

### Scalability

The single rack SCN Plus can manage up to 128 TETRA carriers in the minimum configuration and up to 512 (upgradeable in  $n \times 128$  carrier blocks) in the maximum configuration.

It can provide support for a wide range of interfaces using up to two internal compact gateways, each providing:

- 4W radio I/F: eight channels per gateway
- ISDN-PRI: two E1 per gateway
- VoIP support for call types SIP, H.323 and IAX2

### Resilience

The main SCN Plus fault tolerance functionality is:

- All the modules such as processing, O&M and GW are duplicated
- Resilient Data Bases
- High availability architecture
- Integrated Ring management
- E1 resilience
- No single point of failure
- Disaster Recovery (TETRA)
- Full/partial mesh topology

### Packet switching architecture

Due to the use of TDM over packet technology, a high level of performance can be achieved for real time applications, such as voice or video. This makes the SCN Plus suitable for both circuit switched (TDM-based) and packet switched networks.

### Management

The SCN Plus integrated O&M functionality provides:

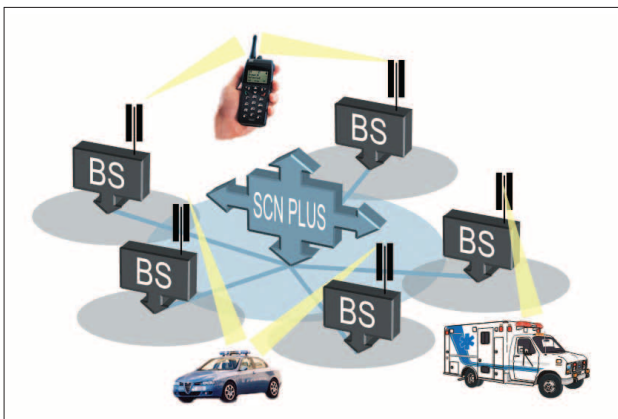
- Fault management
- Configuration management
- Performance management
- Accounting management

### Provisioning

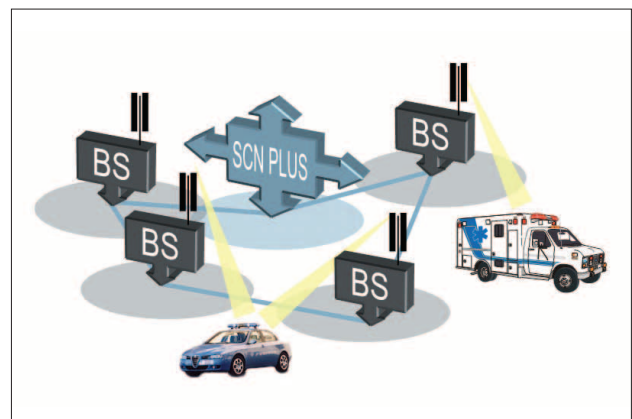
- Virtual Private Networks management
- Users and Groups Management

### Security

- Air interface encryption
- Authentication
- End-to-End encryption



Star topology



Ring topology

## TECHNICAL DATA

Number of Base Station:	Max 256
Number of Carriers:	Max 512
Number of Wan Dispatching St.:	Max 128
Number of Control Room Servers	Max 32
Number of Subscribers	Max 75,000
Dimensions SCN Plus overall (HxWxD):	210 x 60 x 90 cm (external meas.), 43U (internal meas.)
Environmental conditions and EMC:	<ul style="list-style-type: none"> <li>• Compliant to the essential requirements of the directive 1999/5/CE and then it is CE marked</li> <li>• Compliant with ETSI EN 300 386. This standard concerns both emissions and immunity requirements. Emissions limits are those of the standard ESTI EN 55022 class A standard</li> <li>• Compliant to the standard ETSI EN 60950</li> <li>• Operating conditions compliant with ETSI ETS 300 019-1-3, Class 3.1: <ul style="list-style-type: none"> <li>- Temperature: +5 ÷ +40 °C.</li> <li>- Humidity: 5% to 85%, non-condensing.</li> </ul> </li> <li>• Storage conditions compliant with ETSI ETS 300 019-1-1, Class 1.2: <ul style="list-style-type: none"> <li>- Temperature: -25 ÷ 55 °C.</li> <li>- Humidity: 10% to 100%, non-condensing.</li> </ul> </li> <li>• Transport conditions compliant with ETSI ETS 300-019-1-2, Class 2.2</li> </ul>
Power Supply:	<ul style="list-style-type: none"> <li>• From -44 VDC to -60 VDC</li> <li>• -48 VDC nominal</li> </ul>
Power consumption:	Max 1500 Watt
Synchronisation Source	<p>SCN Plus can use one of the following timing sources:</p> <ul style="list-style-type: none"> <li>- External E1 signal.</li> <li>- Use of an internal oscillator with high accuracy.</li> <li>- Optional Internal GPS Time Reference Clock</li> </ul>

