SIEMENS

BSC/TRAU

Key Components for Handling and Routing Information

The Base Station Controller (BSC) and Transcoding Rate Adaption Unit (TRAU) are key components for handling and routing information. Siemens offers operators a flexible configuration, providing solutions that are cost-effective and make optimal use of resources.

Product Profile

Thanks to their flexible and modular architecture, compact design (less than 360 liters due to the latest generation of microprocessor technology), and low heat generation. BSC and TRAU do not require any specific environmental conditions for operation. Thus the operator now has the option of placing either one or both units centrally - e.g., together with the switching equipment - or remotely.

The BSC can be located close to the base stations. It concentrates the traffic towards the MSC, optimizing the utilization of the associated leased lines. In addition, the BSC supports various BSC-BTS configurations (e.g., star, multidrop and loop) and star configurations towards the TRAU.

The TRAU is a stand-alone unit and can be located close to a Mobile Switching Center (MSC), thus optimally utilizing 16kbit/s channel sub-multiplexing and saving line costs.

Information and Communications

Fig.: BSC

Customer Benefits

- A compact solution with only 360 liter volume
- Dynamic capacity of 2,000 Erlang with the option of upgrading to more than 3,000 Erlang
- No raised floors required
- No air conditioning required
- Modular BSC hardware expansion of up to 4,320 ports
- Modular TRAU hardware expansion of up to 480 traffic channels
- Maximum flexibility in network layout for a cost-effective solution from rural to high-density urban environments – due to remote BSC installation
- 16 or 64 kbit/s signaling channels (LAPD) between BSC and BTS (only one channel required per BTS site, minimizing least line costs)
- Separate TRAU that can be located at the MSC site
- Phase 2+ compatibility

Feature Overview

- High fault tolerance due to 2n redundancy in central parts and n+1 redundancy in line interfaces
- Sophisticated redundancy concept. Hardware faults have no impact on existing calls
- Easy system upgrade through software download
- Handling of different software loads at a time
- Addition of line interfaces and BTSs without traffic interruption
- Various A_{bis} interface configurations (star, multidrop, loop)
- Various transmission media (e.g., microwave, PCM30/PCM24, satellite)
- One LMT for all entities
- Queuing and priority
- IMSI/Cell tracing
- Short Message Service (SMS)
- SMS cell broadcast
- Multiband operation
- Support of hierarchical cell structure (up to 16 different priority levels)
- Support of VAD/DTX
- Full support of all existing and upcoming GSM data services: HSCSD, GPRS, EDGE
- ASCI
- Full-rate, half-rate, enhanced full-rate, AMR
- A interface pools supported
- Other GSM services up to phase 2+
- Tandem-free operation
- Prepared for location services

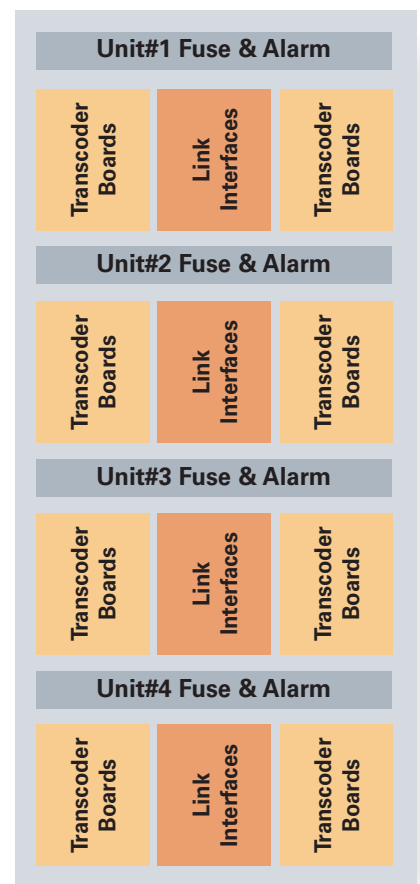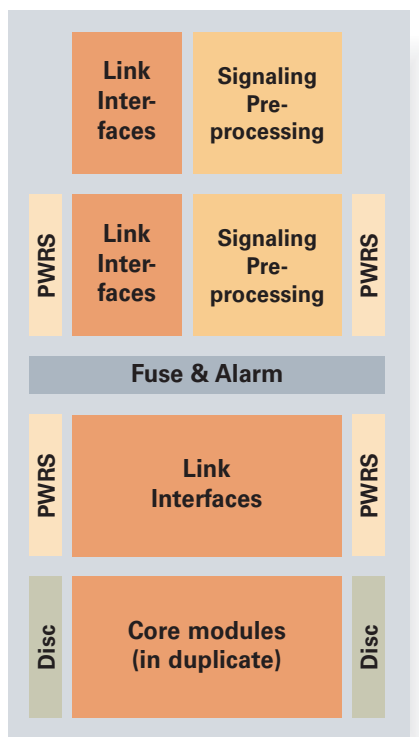Fig.: Front view of TRAU

Fig.: Front view of BSC

Technical Data BSC	
Height x width x depth	2000x600x300mm
Volume net	360 l
Weight	128 kg
Temperature range (including solar radiation)	– 5°C to +45°C
Max. power consumption	350 W
Input voltage	– 48 V
Storage acc. to	ETSI 1.2
Transportation acc. to	ETSI 2.3
Operation acc.to	ETSI 3.1E
Back-to-back mounting	possible
Back-to-wall mounting	possible

Fig.: TRAU

Technical Data TRAU	
Height x width x depth	2000 x 600 x 300 mm
Volume net	360 l
Weight	153 kg
Temperature range (including solar radiation)	– 5°C to + 45°C
Max. power consumption	476 W
Input voltage	– 48V
Storage acc. to	ETSI 1.2
Transportation acc. to	ETSI 2.3
Operation acc. to	ETSI 3.1E

Interfaces

A_{bis} interface	Submultiplexing 16 kbit/s-star, multidrop, loop 16/64 kbit/s LAPD
A_{sub} interface	Submultiplexing 16 kbit/s
A interface	According to GSM 08.
OMC interface	X.25 connection via PSPDN or MSC
LMT interface	X.21/V.11 (64 kbit/s)
Gb interface	Frame relay connection towards SGSN

Abbreviations

AMR	Adaptive Multi-Rate Coding
ASCI	Advanced Speech Call Items
BSC	Base Station Controller
BTS	Base Transceiver Station
DTX	Discontinuous Transmission
EDGE	Enhanced Data rates for GSM Evolution
ETSI	European Telecommunication Standards Institute
GPRS	General Packet Radio Service
GSM	Global System for Mobile Communication
HSCSD	High Speed Circuit Switched Data
IMSI	International Mobile Subscriber Identity
LAPD	Link Access Protocol for D-Channel
LMT	Local Maintenance Terminal
MSC	Mobile Switching Center
OMC	Operation and Maintenance Center
PCM	Pulse Code Modulation
PSPDN	Packet Switched Public Data Network
PWRS	Power Supply
SGSN	Serving GPRS Support Node
SMS	Short Message Service
TRAU	Transcoding and Rate Adaption Unit
VAD	Voice Activity Detection

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