4. SYSTEM GENERAL DESCRIPTION

Here apart from summarizing the different radio services in the vehicle also function extensions were designated which to an improvement of the disturbing insensitivity, the system quiescent current and the diagnosis to lead.

The summarized radio services are :

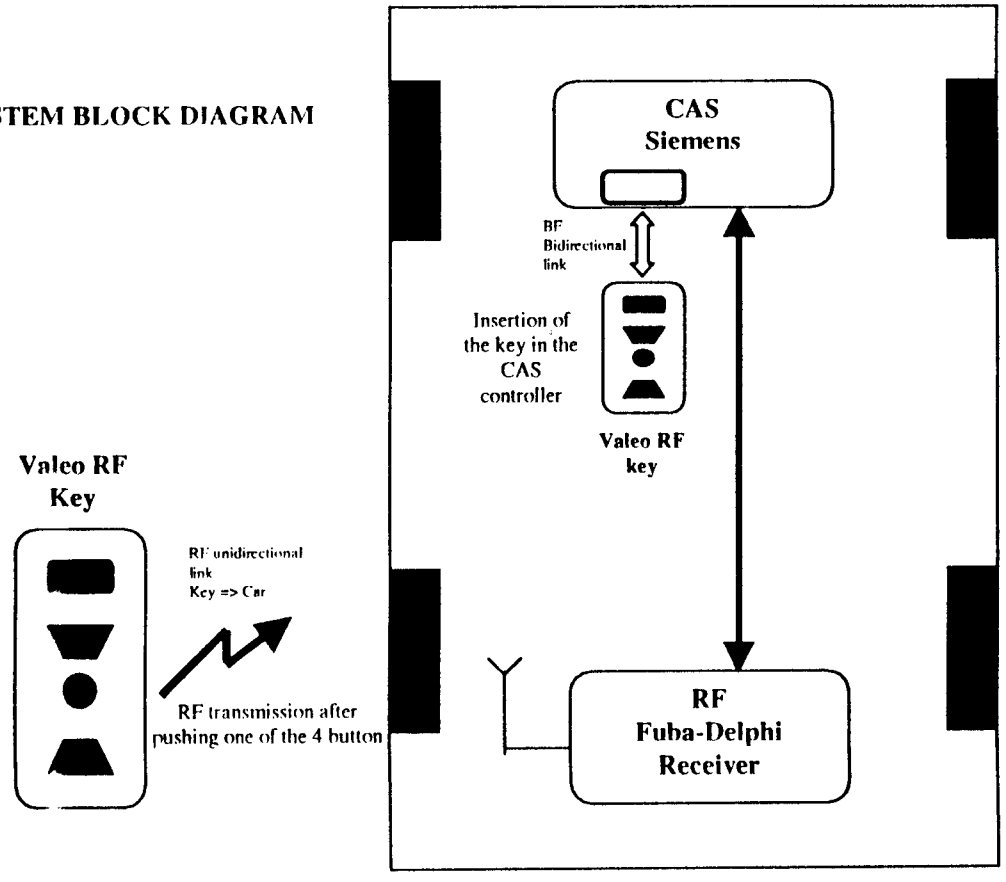
- remote control of the central locking,
- remote control special functions,
- Telestart of the auxiliary heating\ventilieren,
- Telestart status air conditioning,
- Telestart engine remote start,
- Telestart alarm,
- diagnostic trigger in the workshop.

The system consists individually of the following components :

- FBD receiver,
- Radio key,
- Telestart - Hand transmitter,
- Car Access Controller(CAS),
- Passive Access Controller (PGS),
- Identification giver.

With the system different mobile transmitter affect a central FBD receiver in the vehicle, that passes the data on for the analysis and execution to the CAS controller.

SYSTEM BLOCK DIAGRAM

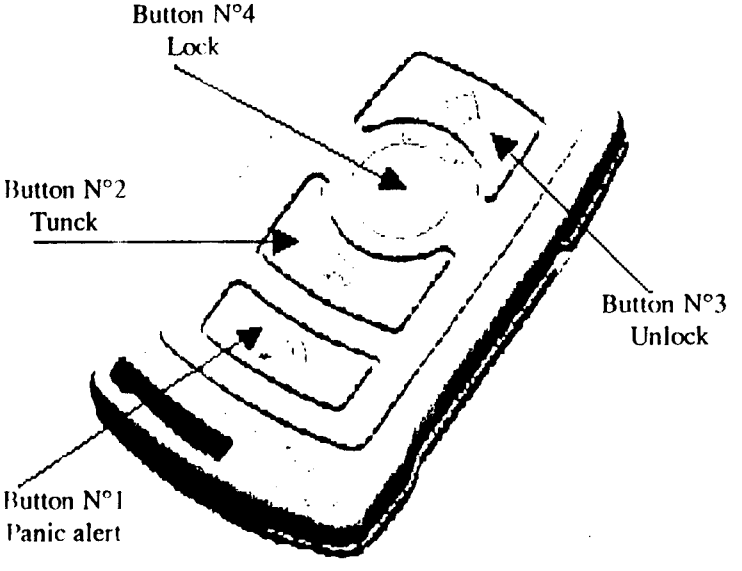


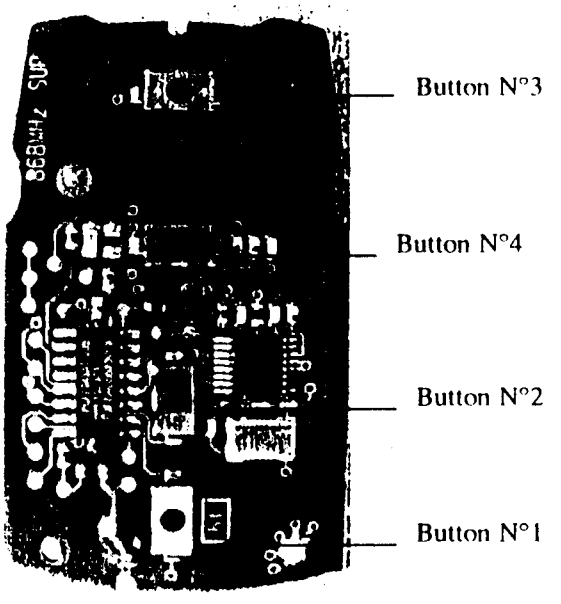
5. TRANSMITTER DESCRIPTION

The key ensures the following functions :

- Detection of a button pressing,
- Check the accumulator voltage,
- Read/write information in the EEPROM,
- Encryption and sending RF message,
- Anti-theft ignition,
- Charging of the accumulator.

The functionalities of the key allow to send locking centralized request and/or particular functions by pushing one of the 4 buttons (lock, unlock, trunk, panic alert), to disconnect the function of anti-theft ignition device via transponder LF, to reload the accumulator and to record the special data relating to the after-sales service.





The functions of the remote centralized locking are started via an unidirectional RF connection. Telegrams are received by a RF receiver who formats information and transmits it to the CAS via a bus in the vehicle. Then the CAS module decodes information thanks to the various data initialize during the training conveys and authorized or not the execution of the following commands :

- Opening / closing of centralized locking,
- Activation / desactivation the protection system (Alarm),
- Disconnect the sensor of slope and the protection of the cockpit,
- Start the safety mode (Panic alarm),
- Unlock of the forage ladder,
- Open/close the forage ladder, switch the interior light,
- Open/close windows/sunroof.

The key communicate also in a bidirectional mode with a base station (CAS) through low frequency at 125 kHz thanks to the built-in transponder which can perform codes authentication or answer to a CAS command, authorizing the start of the vehicule.

5.1. ARCHITECTURE

Transmitter architecture is mainly composed of the Siemens TDA 5100 ASIC (ASIC designed for 868.4 MHz, 434.2 MHz, 315 MHz and 315 MHz Low Power RF transmission) and of the PCF7942 microcontroller (= Security Transponder and Advanced Remote Controller : STARC) which incorporates the following circuitry :

- **Security Transponder**
  - Contactless interface
  - Standard 256 bit EEPROM
  - extended user EEPROM up to 4K bit
  - control logic
  - RISC interface
  -
- **Advanced Remote Controller**
  - 8-bit RISC
  - 2Kb ROM
  - 64 bytes RAM
  - Timer and modulator
  - Interrupt control
  - RC oscillator (4 MHz)
  -
- **Power Management**
  - Power supply
  - Battery low detection
  - Programmable battery charging circuit